Low Height Loop Antenna for 40- 6 meter Bands

The publication is devoted to the memory UR0GT.

Credit Line: Forum from:
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By: **Nikolay Kudryavchenko, UR0GT**

Everyone knows the Golden Rule of the radio amateur antenna- the higher the antenna is placed, the better for radio communication. Unfortunately, it is not always possible to install the antenna at right height above the ground. For many reasons, it could be difficult to install a high mast during a Field Day. Sometimes, in the place of the residence of the radio amateur, there are also difficulties with the installation of a high mast.

However, a simple wire antenna may be used for operation on the 40- 6 meter Bands. **Figure 1** shows the antenna. The hexagon, with each side of 21 meters, and placed at height of 4 meters, provides good radiation pattern that almost does not have radiations in to zenith. The antenna is easy to install, it only requires 6 masts with a height of 4 meters. The antenna does not require tuning. To install the antenna, you only need to mark the place for the masts, and 120 meters of wire in 18 AWG.

Figure 2 shows the place you need to mark for installation of the antenna. For masts, you may use plastic pipe, plastic fishing rod or wooden stick. Compared to other antennas with the same characteristics, this is a very budget option.

This antenna has input impedance of 75 ohms at the 40 meter Band. It allows feed the antenna by a 50 or 75 ohms coaxial cable. On the 30, 20, 15, 10 and 6 meter bands, this antenna has acceptable impedance for matching with a tuner. When using this antenna on all bands from 40 to 6 meters, the antenna must be powered using a two-wire line. The line may be with any length and with impedance of 300- 600 Ohm. After the line it should be used balanced ATU, for example as MFJ-974HB.

73! de UR0GT

The MMANA model of the Low Height Loop Antenna for 40- 6 meter Bands: http: // www.antentop.org/025/LHL_UR0GT_025.htm

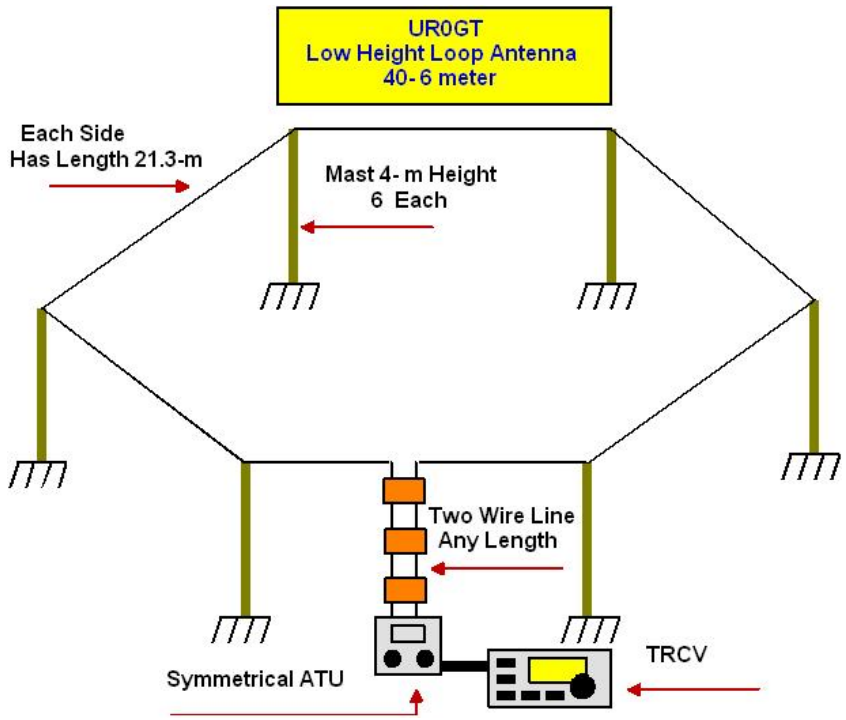


Figure 1 Low Height Loop Antenna for 40- 6 meter Bands

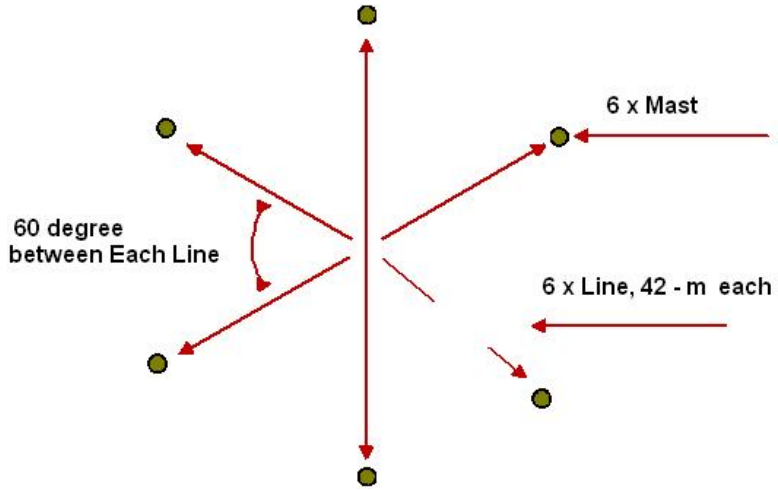


Figure 2 Place for Installation of the Low Height Loop Antenna for 40- 6 meter Bands

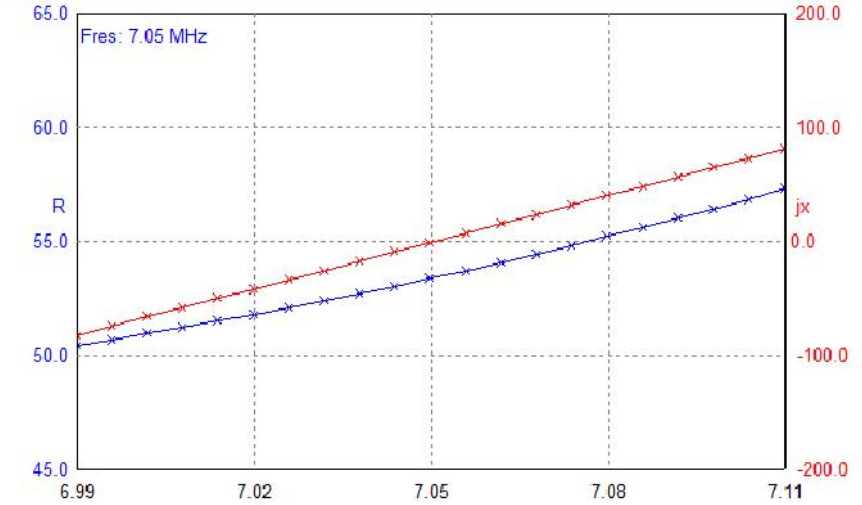


Figure 3 Z of the Low Height Loop Antenna for 40- 6 meter Bands at 7- MHz Band

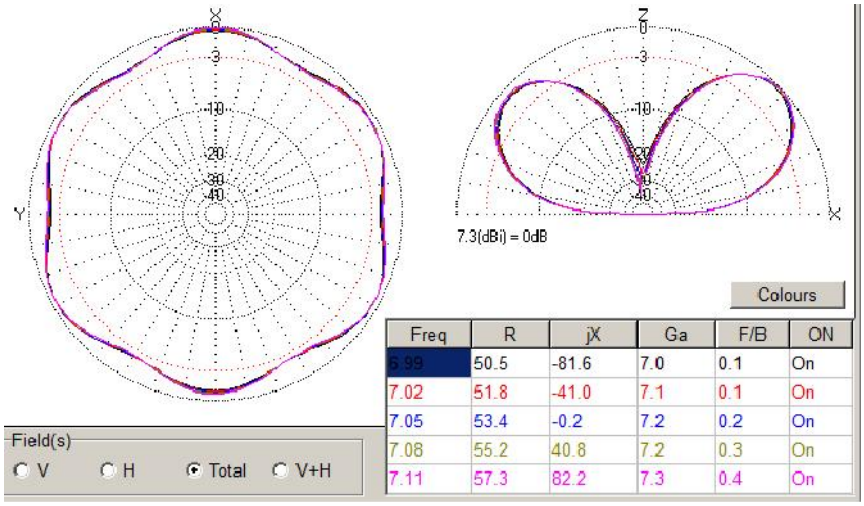


Figure 4 DD of the Low Height Loop Antenna for 40- 6 meter Bands at 7- MHz Band

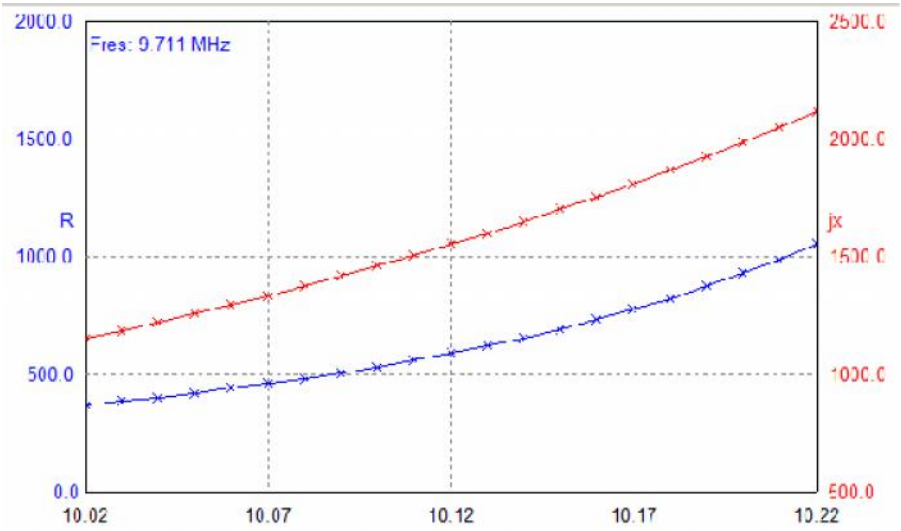


Figure 5 Z of the Low Height Loop Antenna for 40- 6 meter Bands at 10- MHz Band

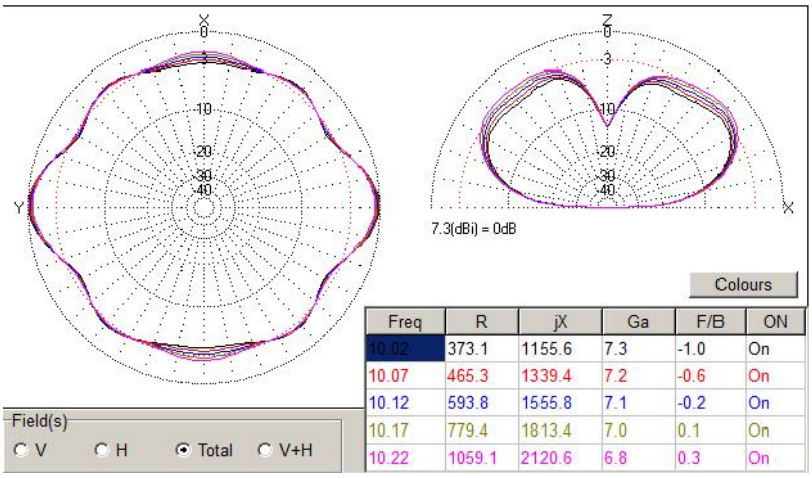


Figure 6 DD of the Low Height Loop Antenna for 40- 6 meter Bands at 10- MHz Band

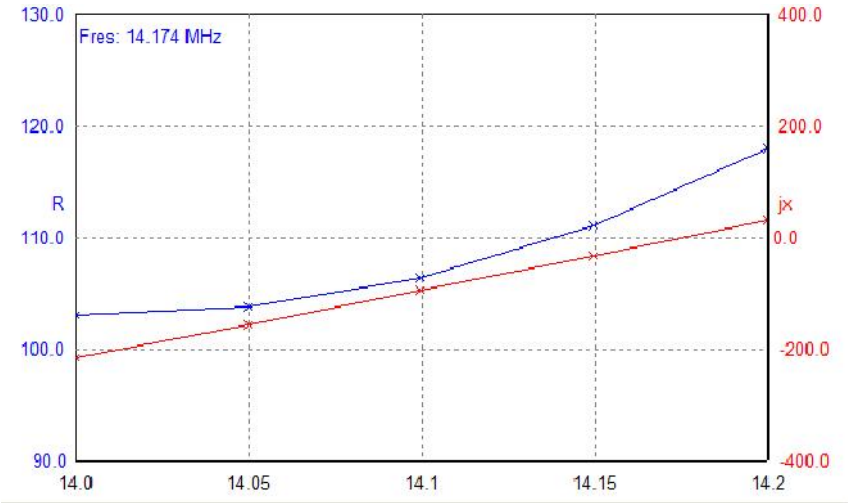
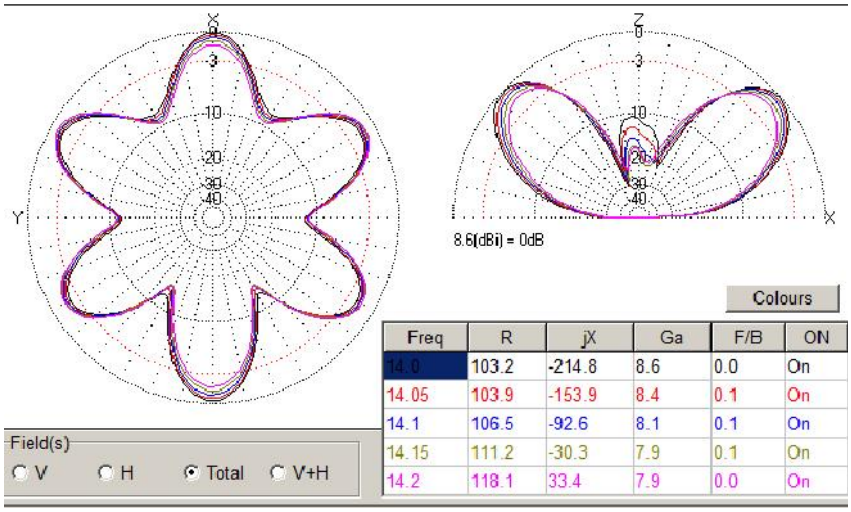


Figure 7 Z of the Low Height Loop Antenna for 40- 6 meter Bands at 14- MHz Band



Freq	R	jX	Ga	F/B	ON
14.0	103.2	-214.8	8.6	0.0	On
14.05	103.9	-153.9	8.4	0.1	On
14.1	106.5	-92.6	8.1	0.1	On
14.15	111.2	-30.3	7.9	0.1	On
14.2	118.1	33.4	7.9	0.0	On

Figure 8 DD of the Low Height Loop Antenna for 40- 6 meter Bands at 14- MHz Band

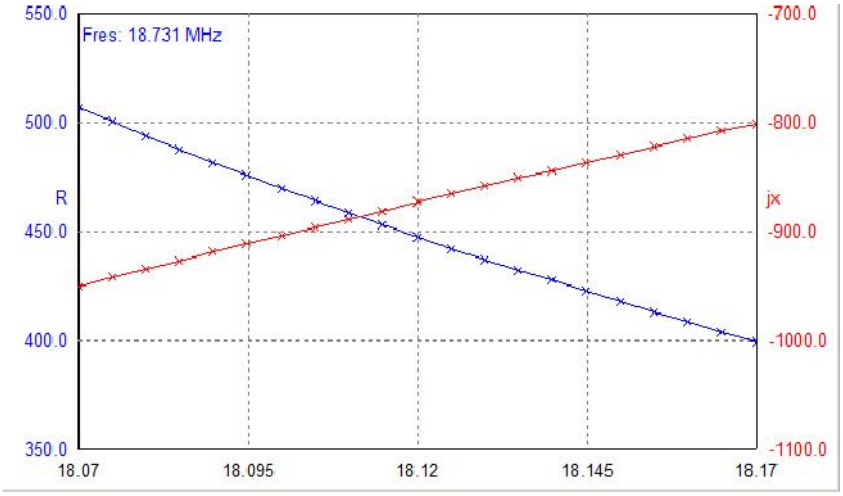
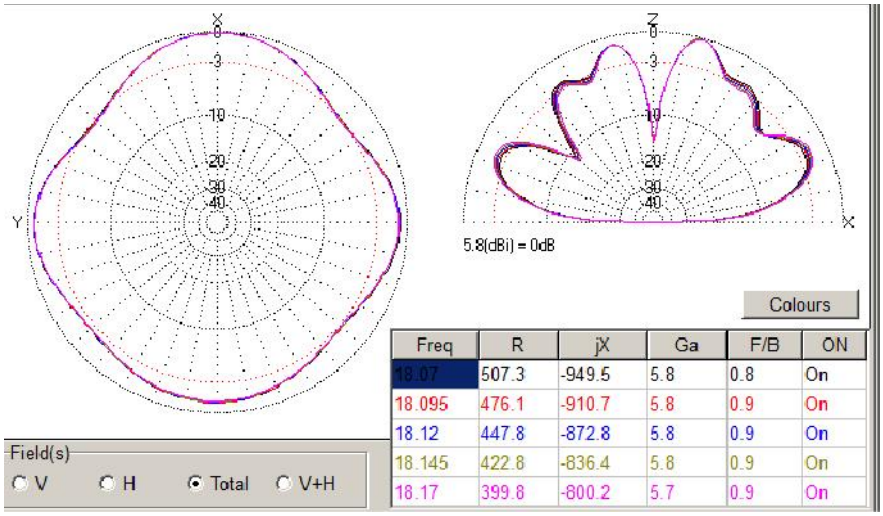


Figure 9 Z of the Low Height Loop Antenna for 40- 6 meter Bands at 18- MHz Band



Freq	R	jX	Ga	F/B	ON
18.07	507.3	-949.5	5.8	0.8	On
18.095	476.1	-910.7	5.8	0.9	On
18.12	447.8	-872.8	5.8	0.9	On
18.145	422.8	-836.4	5.8	0.9	On
18.17	399.8	-800.2	5.7	0.9	On

Figure 10 DD of the Low Height Loop Antenna for 40- 6 meter Bands at 18- MHz Band

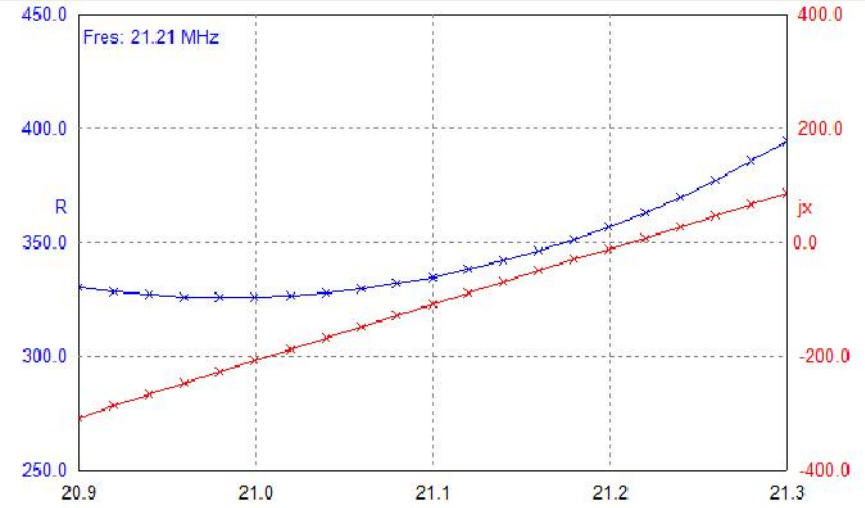


Figure 11 Z of the Low Height Loop Antenna for 40- 6 meter Bands at 21- MHz Band

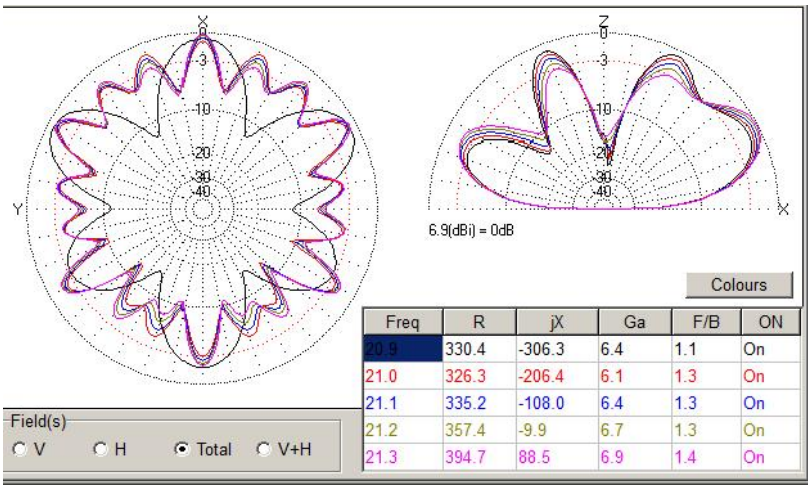


Figure 12 DD of the Low Height Loop Antenna for 40- 6 meter Bands at 21- MHz Band

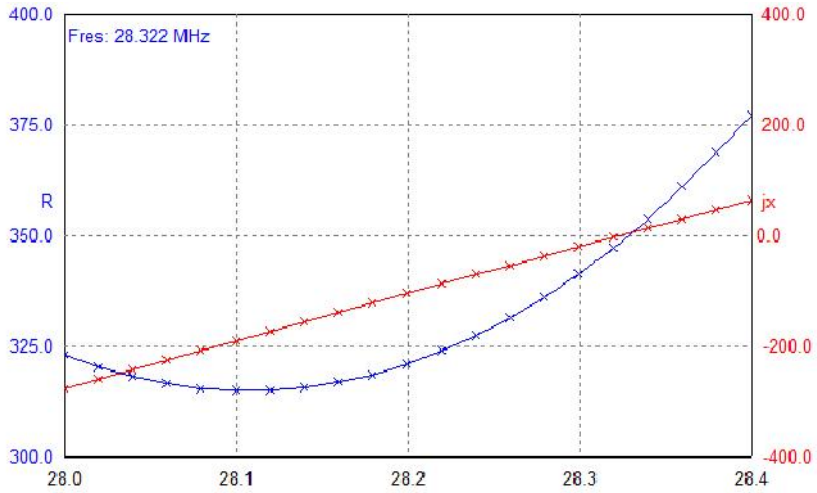
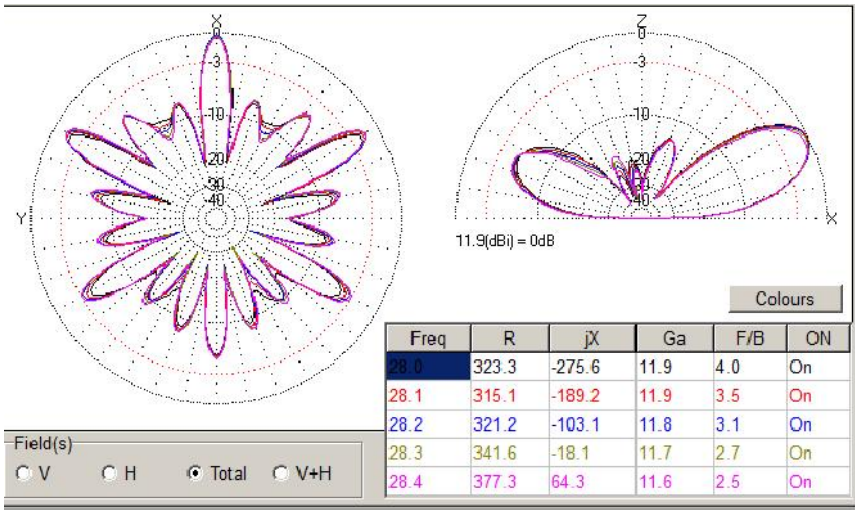


Figure 13 Z of the Low Height Loop Antenna for 40- 6 meter Bands at 28- MHz Band



Freq	R	jX	Ga	F/B	ON
28.0	323.3	-275.6	11.9	4.0	On
28.1	315.1	-189.2	11.9	3.5	On
28.2	321.2	-103.1	11.8	3.1	On
28.3	341.6	-18.1	11.7	2.7	On
28.4	377.3	64.3	11.6	2.5	On

Figure 14 DD of the Low Height Loop Antenna for 40- 6 meter Bands at 28- MHz Band

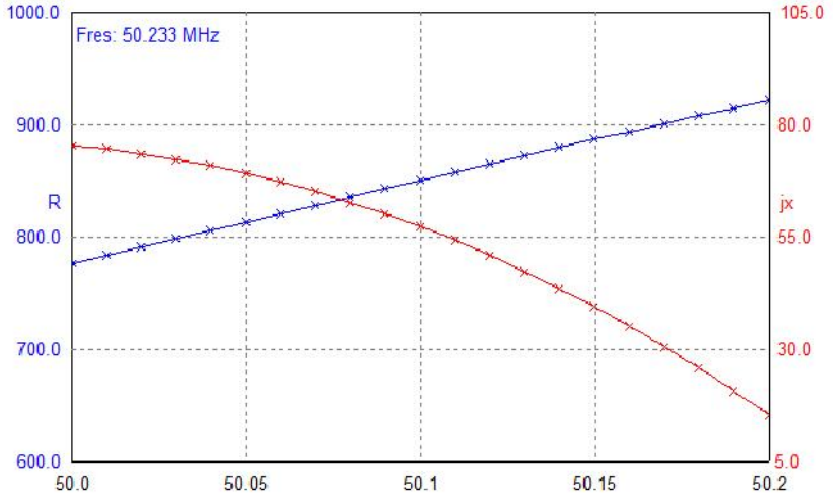
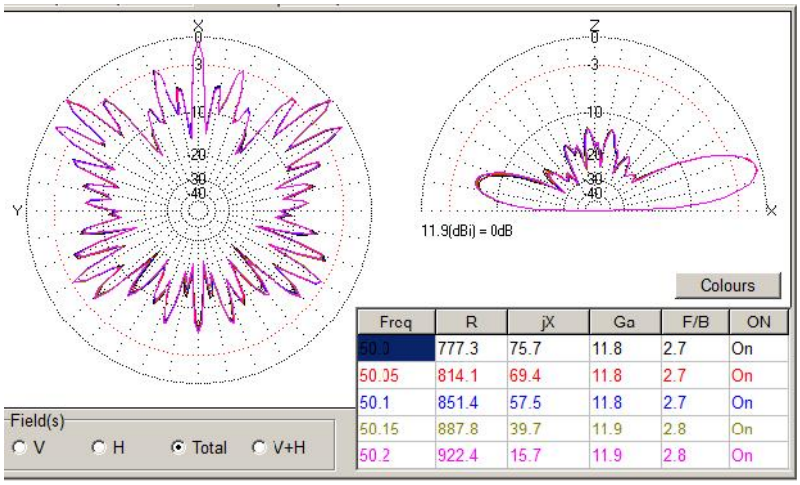


Figure 15 Z of the Low Height Loop Antenna for 40- 6 meter Bands at 50- MHz Band



Freq	R	jX	Ga	F/B	ON
50.0	777.3	75.7	11.8	2.7	On
50.05	814.1	69.4	11.8	2.7	On
50.1	851.4	57.5	11.8	2.7	On
50.15	887.8	39.7	11.9	2.8	On
50.2	922.4	15.7	11.9	2.8	On

Figure 16 DD of the Low Height Loop Antenna for 40- 6 meter Bands at 50- MHz Band