

BiQuad Antennas for 432 MHz Band

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In this article we take a look for several designs of BiQuad antennas for the 432- MHz Band. **Figure 1** shows classical design of the BiQuad antenna. **Figure 2** shows Z of the antenna. **Figure 3** shows SWR of the antenna. **Figure 4** shows DD of the antenna. The antenna has input impedance 85 Ohm that allows feed it with 75 Ohm coaxial cable.

Adding one shunt wire allows increase the broad band of the antenna. Also the gain of the antenna is increased as well.

Input impedance of the antenna is 200- Ohm so it is possible match the antenna with 50- Ohm coaxial cable with help of 4:1 transformer. **Figure 5** shows design of the Shunt BiQuad antenna. **Figure 6** shows Z of the Shunt BiQuad antenna. **Figure 7** shows SWR of the Shunt BiQuad antenna. **Figure 8** shows DD of the Shunt BiQuad antenna.

The BiQuad antenna is not so critical to dimension. It allows use to a wide range of the wires to make the antenna.

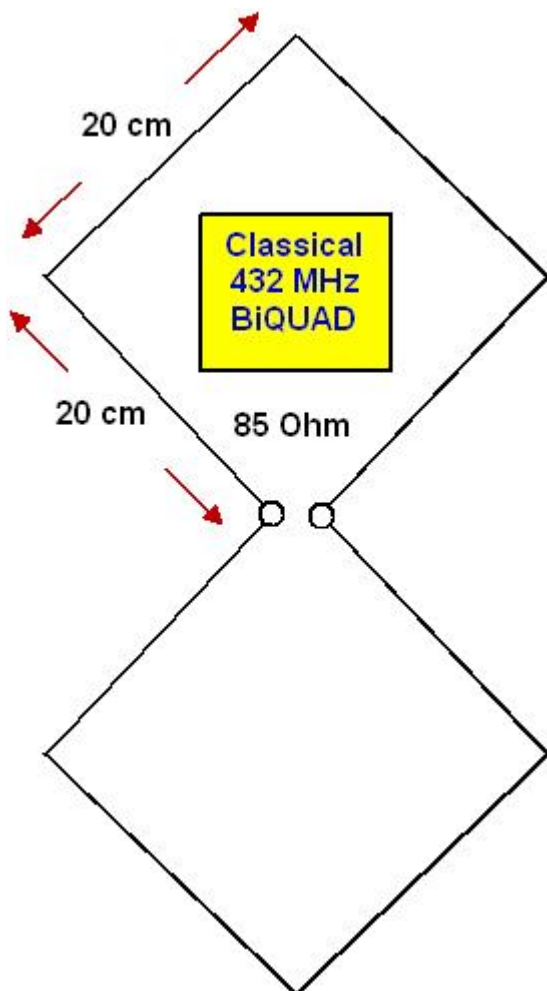


Figure 1 Classical Design of the BiQuad Antenna

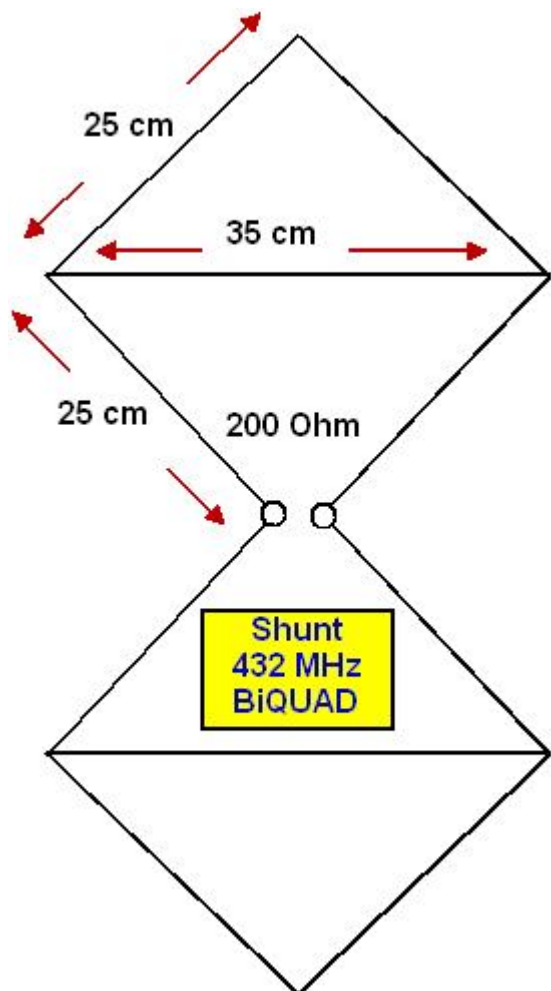


Figure 5 Design of the Shunt BiQuad Antenna

MMANA file for the antennas may be downloaded at http://www.antentop.org/023/RW4HFN_BQuad_023.htm

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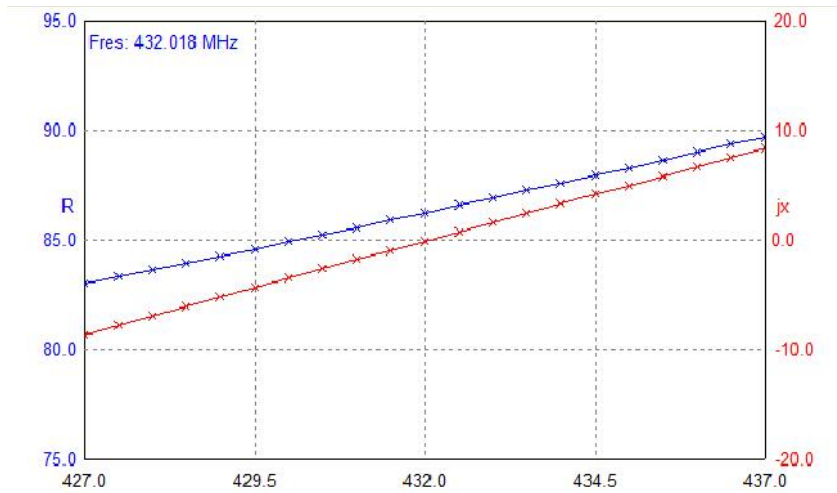


Figure 2 Z of Classical Design of the BiQuad Antenna

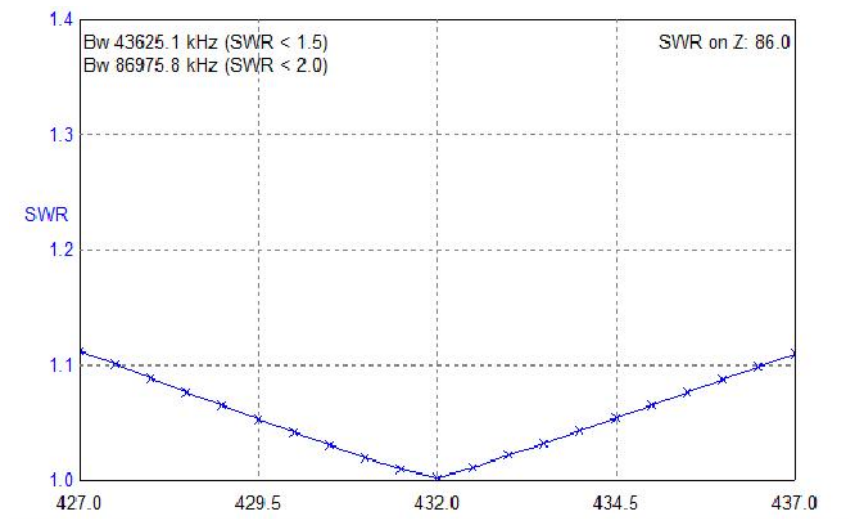


Figure 3 SWR of Classical Design of the BiQuad Antenna

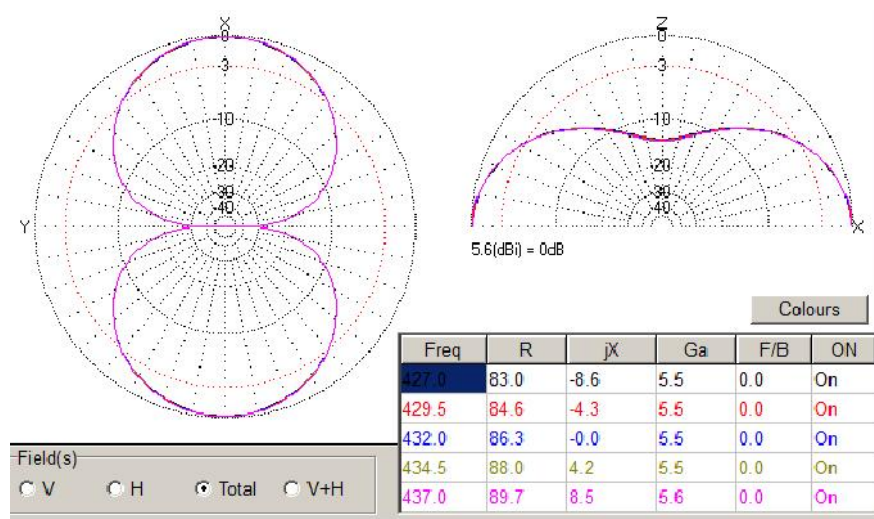


Figure 4 DD of Classical Design of the BiQuad Antenna

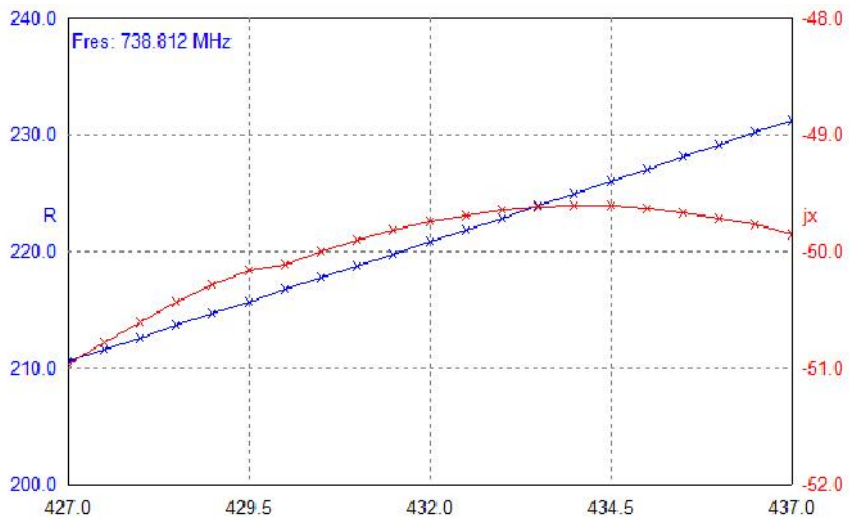


Figure 6 Z of the Shunt BiQuad Antenna

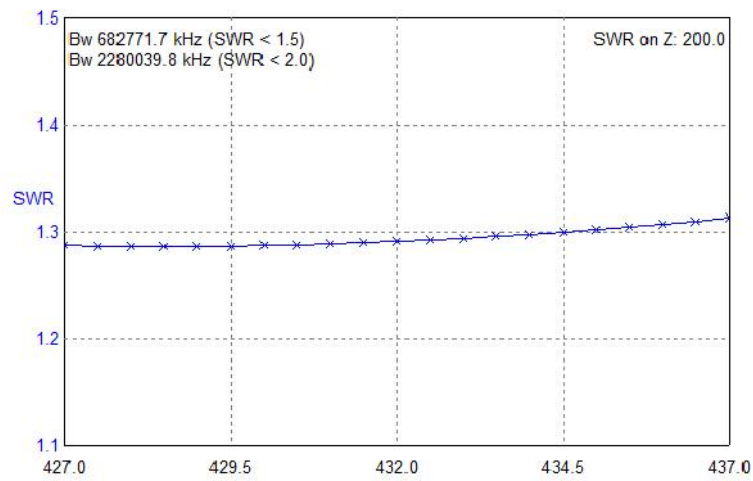


Figure 7 SWR of the Shunt BiQuad Antenna

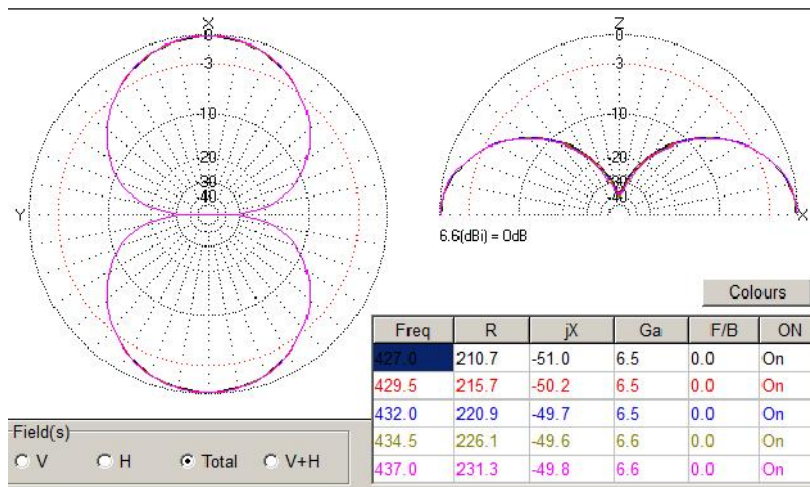


Figure 8 DD of the Shunt BiQuad Antenna

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Adding in the center of the shunt wire an inductor allows adjust antenna resonance frequency that makes the antenna very universal. Input impedance of the antenna is 200- Ohm so it is possible match the antenna with 50- Ohm coaxial cable with help of 4:1 transformer. Gain almost the same as at shunt BiQuad antenna. SWR is lower compare to the shunt BiQuad antenna.

Figure 9 shows design of the Shunt BiQuad antenna with center inductor. **Figure 10** shows Z of the Shunt BiQuad antenna with center inductor. **Figure 11** shows SWR of the Shunt BiQuad antenna with Center Inductor. **Figure 12** shows DD of the Shunt BiQuad antenna with center inductor.

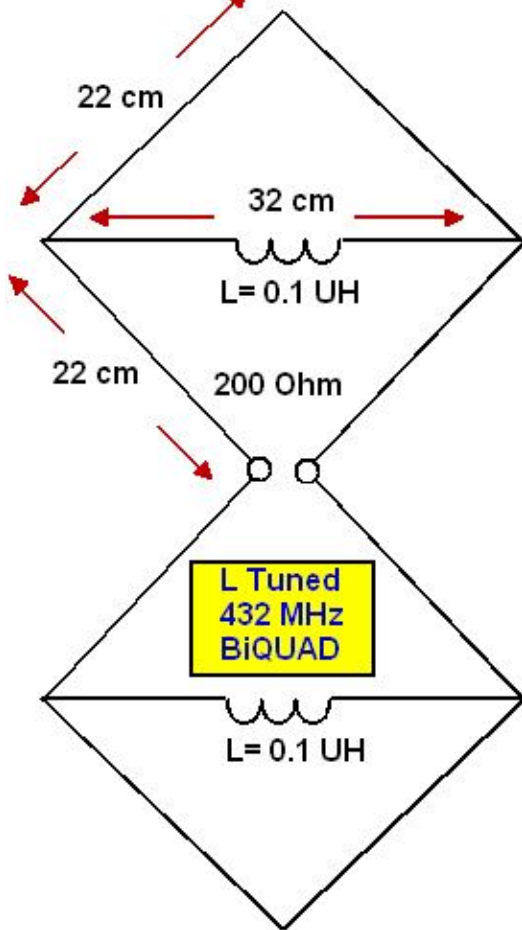


Figure 9 Design of the Shunt BiQuad Antenna with Center Inductor

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Another modification of the antenna is 3-D BiQuad Antenna. Input impedance of the antenna is 200- Ohm so it is possible match the antenna with 50- Ohm coaxial cable with help of 4:1 transformer. Gain almost the same as at shunt BiQuad antenna. SWR is lower compare to the shunt BiQuad antenna.

Figure 13 shows design of the 3-D BiQuad antenna. **Figure 14** shows Z of the 3-D BiQuad antenna. **Figure 15** shows SWR of the 3-D BiQuad antenna. **Figure 16** shows DD of the 3-D BiQuad antenna.

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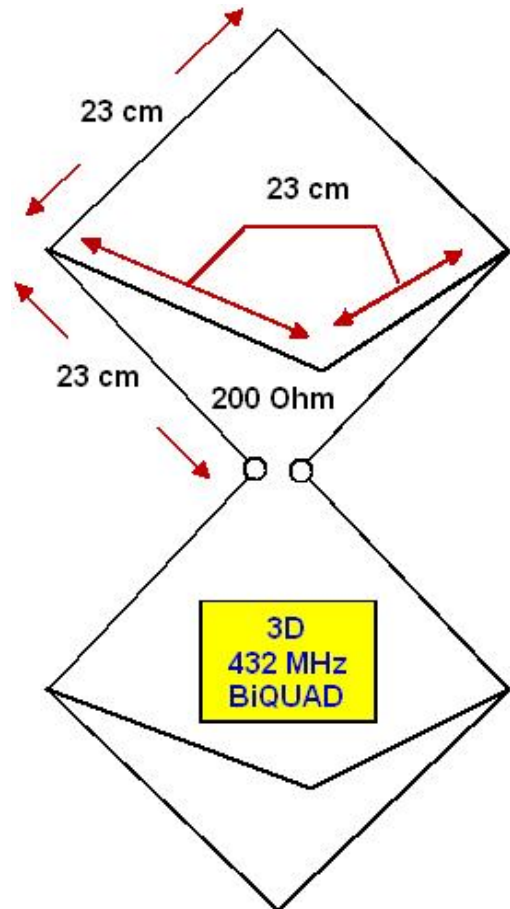


Figure 13 Design of the 3-D BiQuad Antenna

MMANA file for the antenna may be downloaded at http://www.antentop.org/023/RW4HFN_BQuad_023.htm



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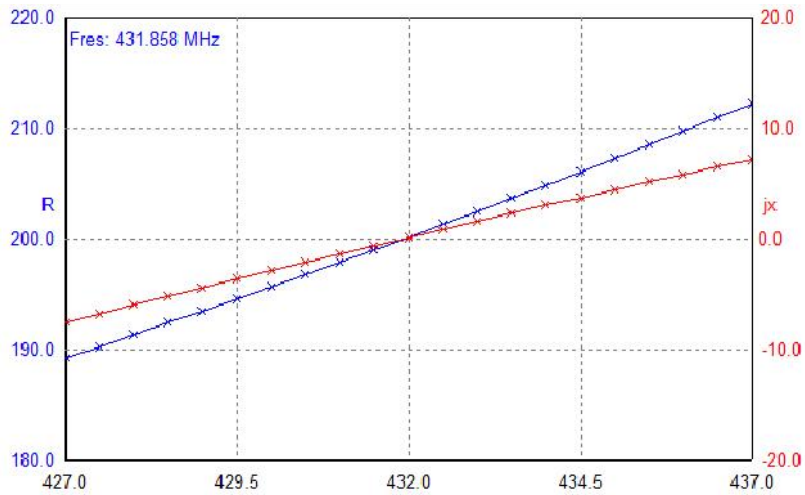


Figure 10 Z of the Shunt BiQuad Antenna with Center Inductor

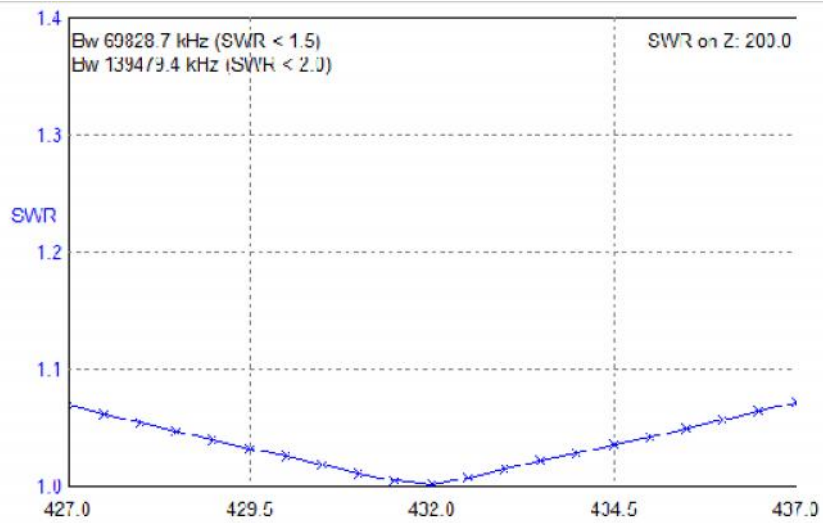


Figure 11 SWR of the Shunt BiQuad Antenna with Center Inductor

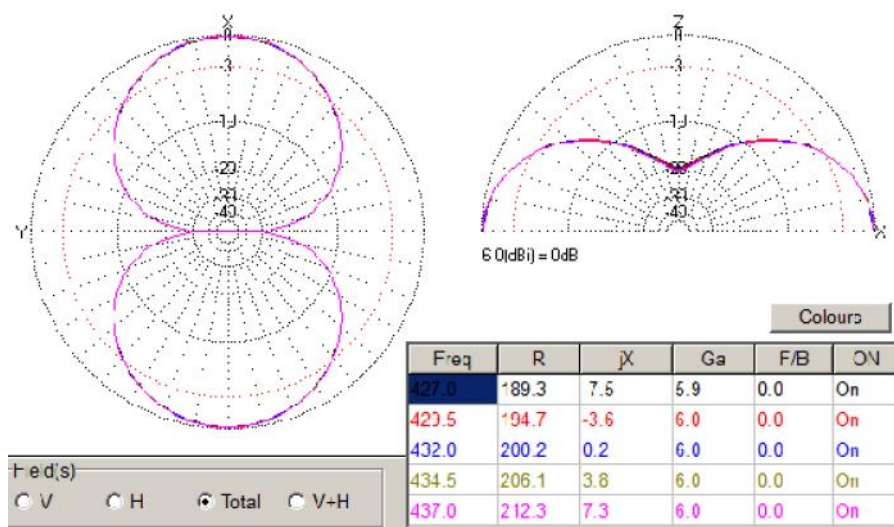


Figure 12 DD of the Shunt BiQuad Antenna with Center Inductor

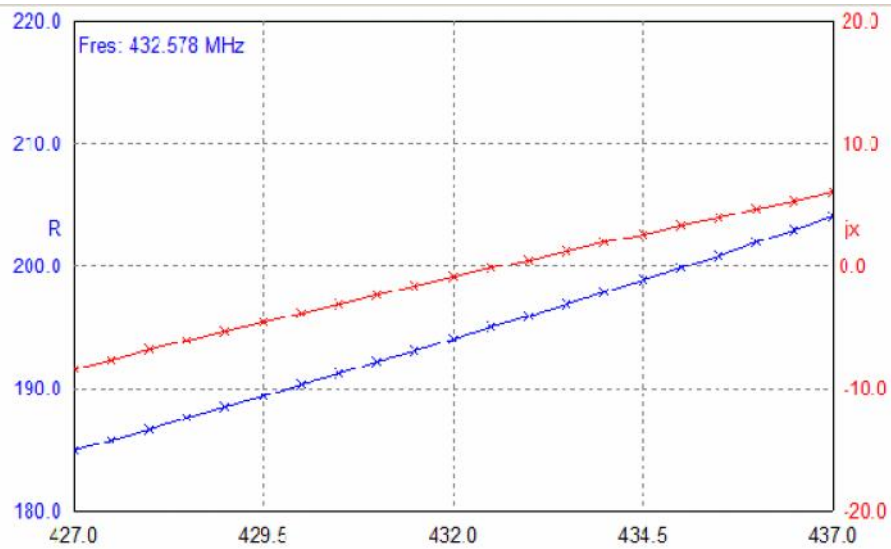


Figure 14 Z of the 3-D BiQuad Antenna

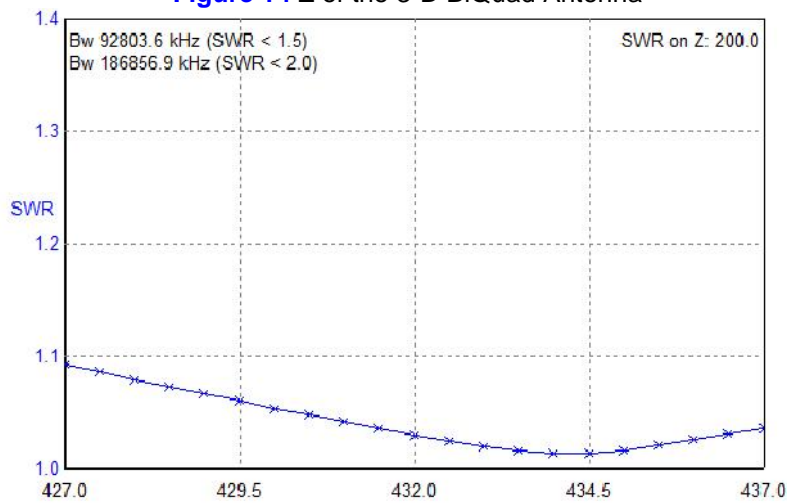


Figure 15 SWR of the 3-D BiQuad Antenna

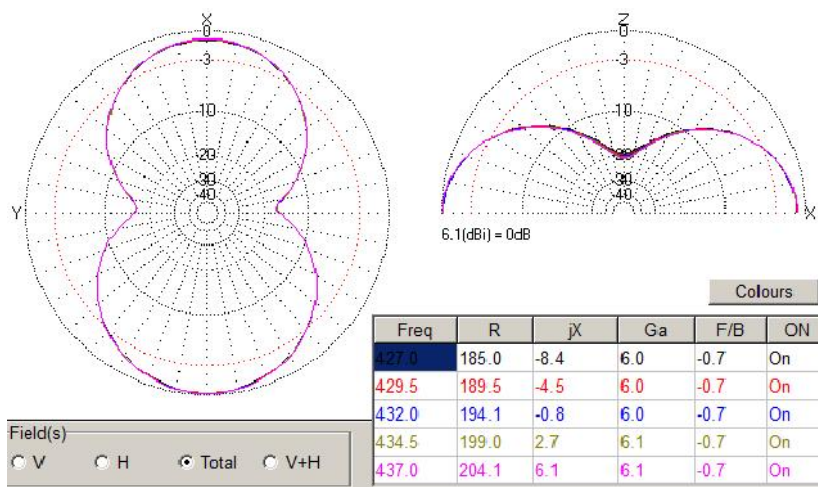


Figure 16 DD of the 3-D BiQuad Antenna