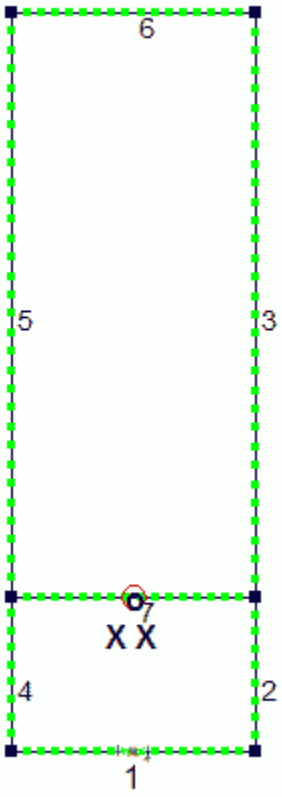
The DK7ZB-Reflector-Hentenna

Descriptions for 144-MHz- , 70 MHz- and 50-MHz-Reflector-Hentennas below!



The original Hentenna as a special kind of a single loop was described first in the 1970ies by Japanese Hams, an Eng article by JF6DEA/KE1EO about the Antenna ("The Hentenna – The Japanese 'Miracle' Wire") was in the QST 1982 an the ARRL-Antenna- Compendium, Vol. 5. The basic function of the Hentenna structure is the 1,50-λ-Extended-Quad. T antenna with the figure of an "Oblong" has a gain of 3,6 dBd, but a feedpoint impedance of 73 + j 470 Ω.

The Hentenna has nearly the same gain, but a clever feeding with an impedance at XX of 50-70 +/- j 0 Ω .

The parts have the following lengths:

1, 6, 7: 0,15 λ

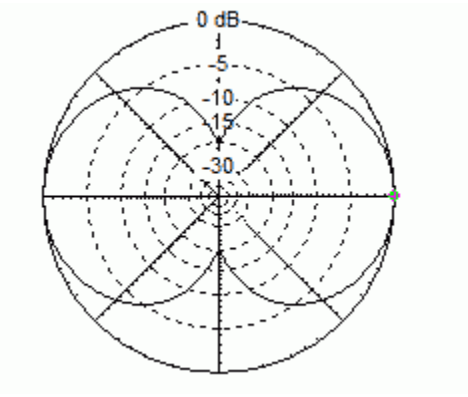
2, 4: 0,1 λ

3, 5: 0,5 λ

The data of the Hentenna-Loop:

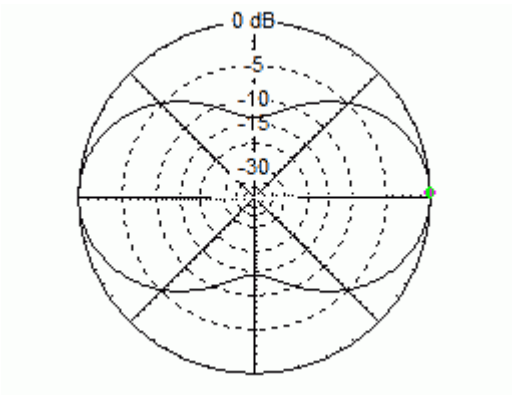
Gain 3,05 dBd

3-dB-Azimuth-angle 88,2°, 3-dB-Elevation-angle 69,5°



Left: Azimuth-plot

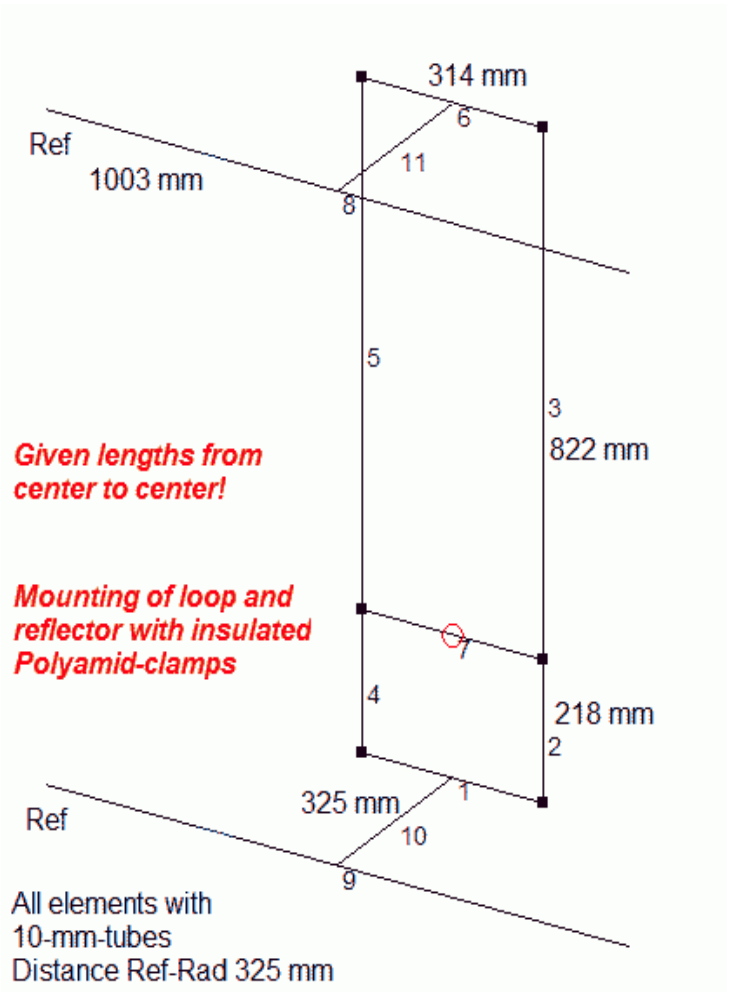
Right: Elevation plot

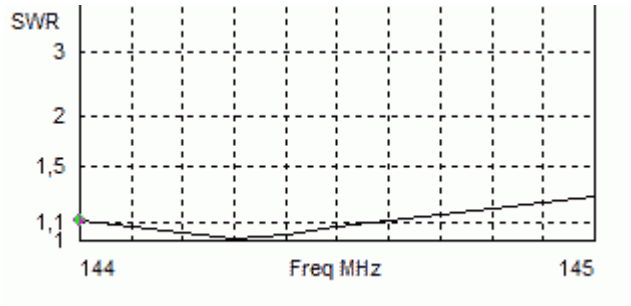


The 144-MHz-Reflector- Hentenna by DK7ZB

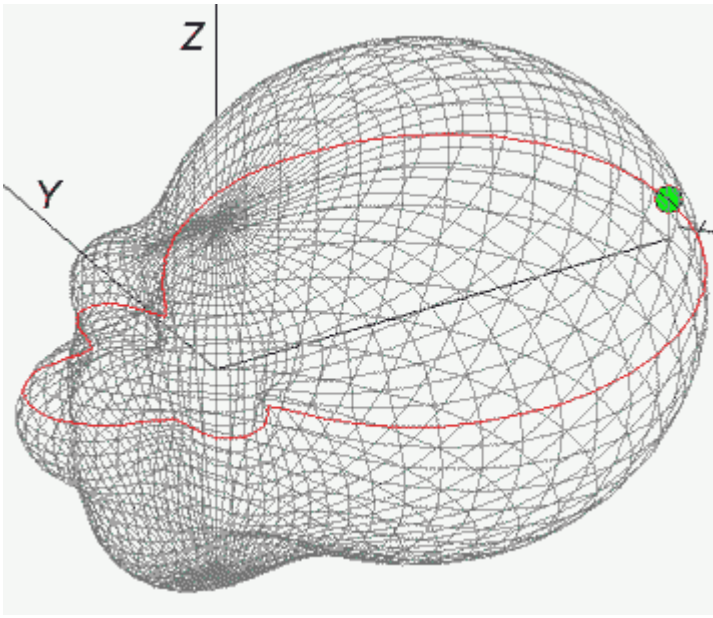
With two reflector elements the Hentenna can be changed from a bidirectional antenna to an interesting directional antenna.

50-Ω-Impedance, fed with a 50-Ω-coax-choke (look for the pictures). A vertical metallic support through the antenna system has no influence to the feedpoint impedance and the resonant frequency!



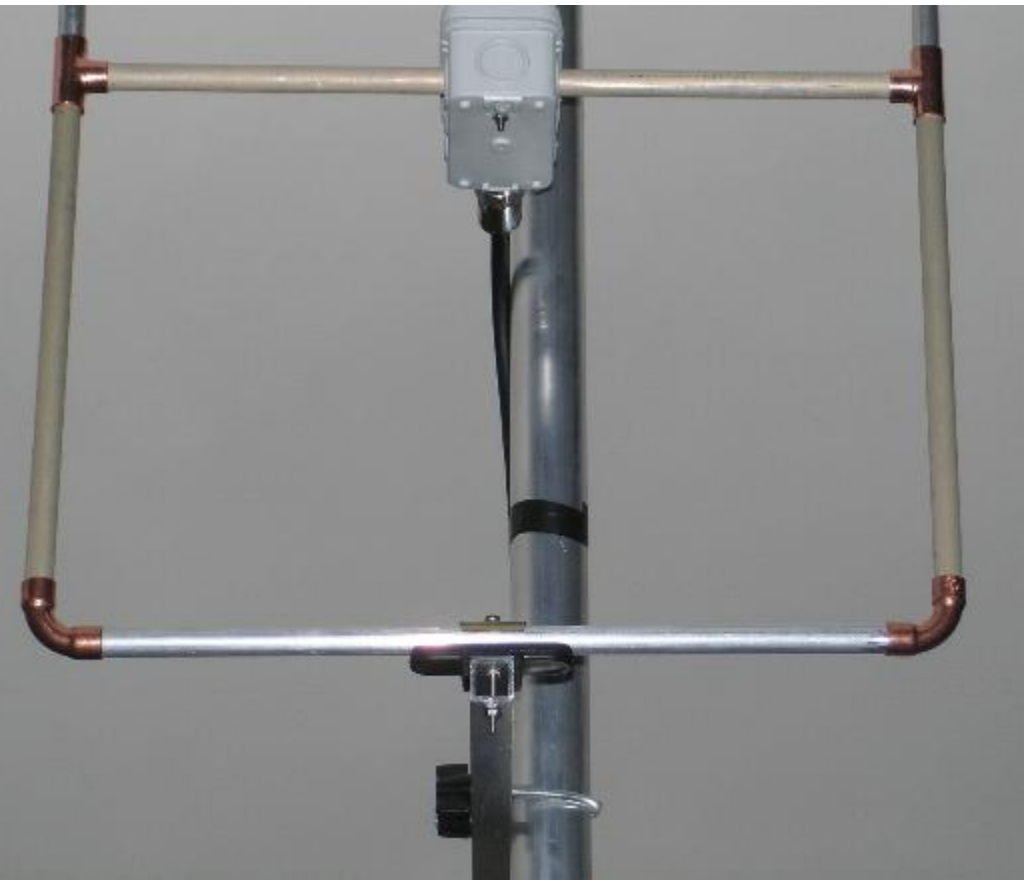


Gain 7 dBd, F/B 15 dB

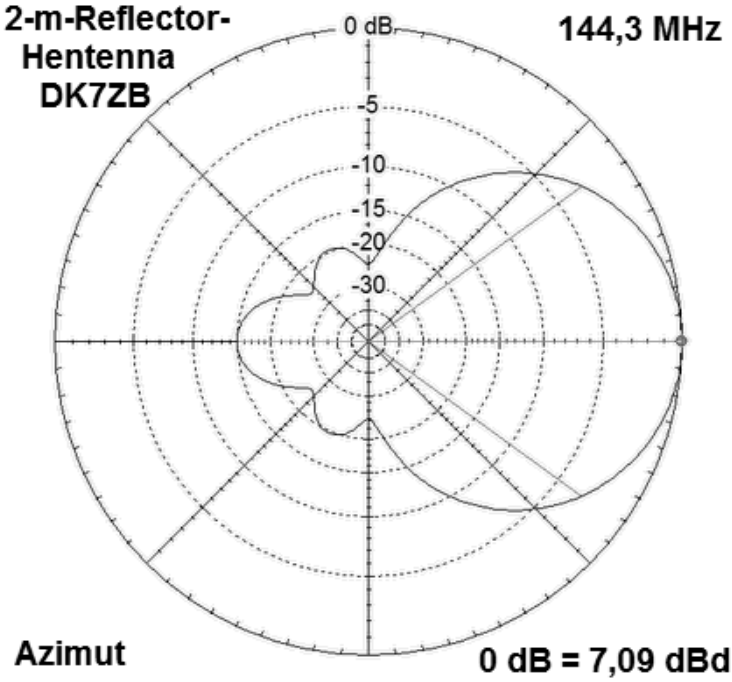


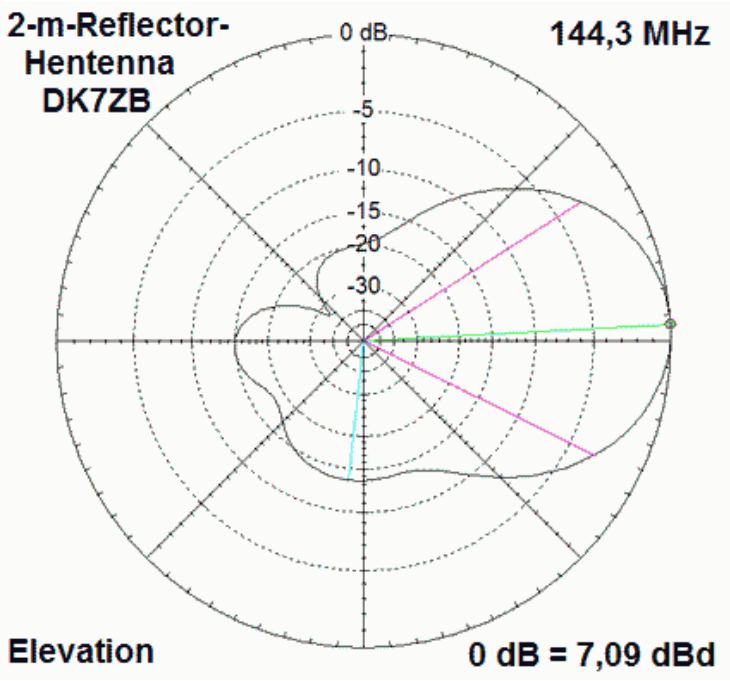
Dimensions for a 2-m-Reflector-Hentenna wit 10-mm- and 12-mm-elements

Segments	Lengths 12 mm	Lengths 10 mm
1, 6, 7 (hor)	314 mm	314 mm
3,5 (ver)	824 mm	822 mm
2,4 (ver)	219 mm	218 mm
8,9 (Ref)	1006 mm	1003 mm
Dist. Rad-Ref	320 mm	325 m

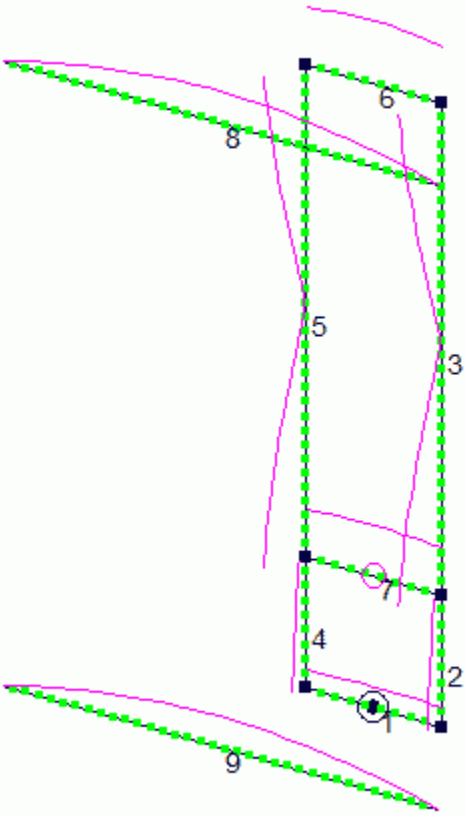


The mechanical details of the construction. The loop edges and the connections are made of copper-fittings for 10-mm-tubes





The 50-MHz-Reflector-Hentenna by DK7ZB



With two reflector elements the Hentenna can be changed from a bidirectional antenna to an interesting directional DX-antenna.

The data of the Hentenna with two reflectors by DK7ZB:

Gain 7,05 dBd, F/B 12,5 dB

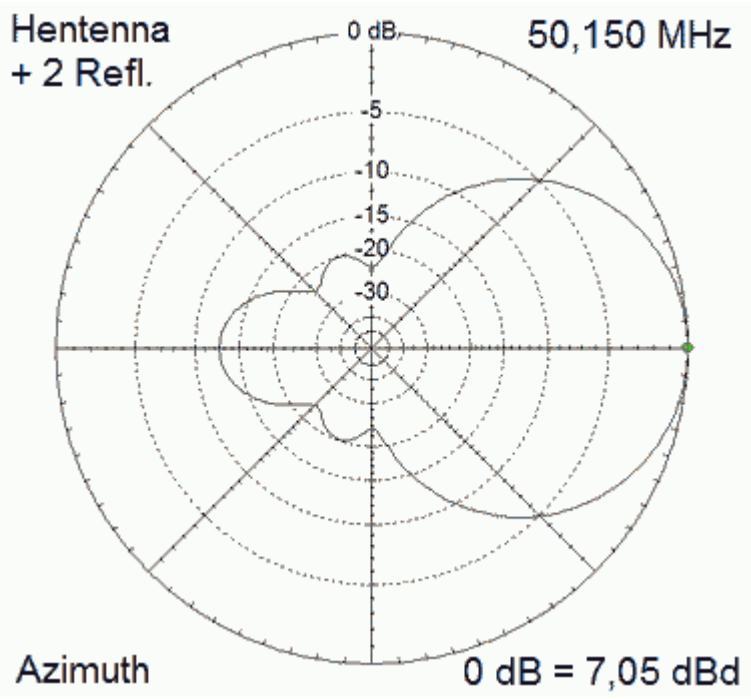
Impedance 50 +/- j 0 Ω

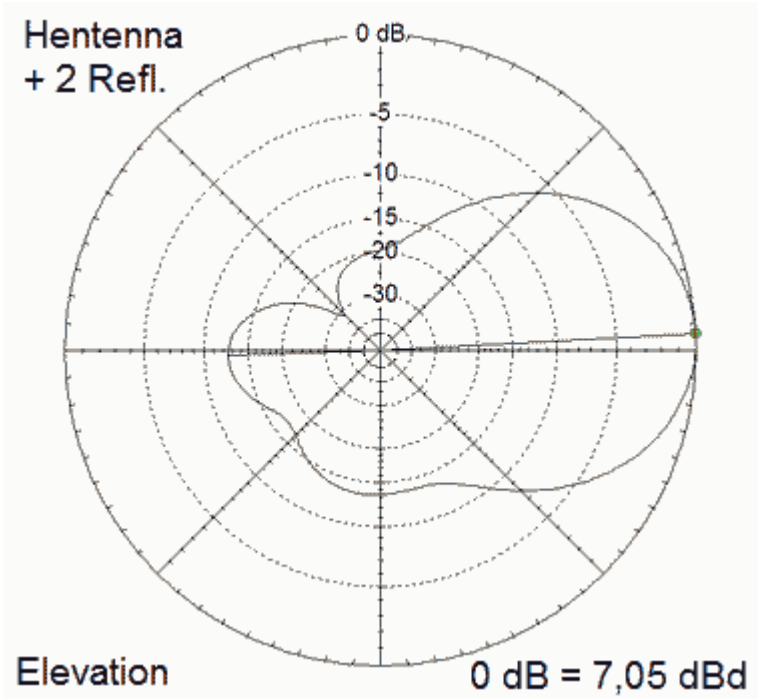
3-dB-Azimuth-angle 71,4°, 3-dB-Elevation-angle 59°

The vertical pattern is a little bit asymmetric with a 3° upward lobe (see down).

Segments	Length
1, 6, 7 (hor)	900 mm
3, 5 (ver)	2343 mm
2, 4 (ver)	625 mm
8, 9 (Ref)	2900 mm

Distance Ref-Loop 975 mm, all elements 12 mm diameter


Hentenna
+ 2 Refl.
50,150 MHz
0 dB
-5
-10
-15
-20
-30
Azimuth
0 dB = 7,05 dBd


Hentenna
+ 2 Refl.
0 dB
-5
-10
-15
-20
-30
Elevation
0 dB = 7,05 dBd