

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 English article by JF6DEA/KE1EO about the Antenna ("The Hentenna – The Japanese 'Miracle' Wire") was in the QST 1982 and in the ARRL-Antenna- Compendium, Vol. 5. The basic function of the Hentenna structure is the $1,50\text{-}\lambda$ -Extended-Quad. This antenna with the figure

of an "Oblong" has a gain of 3,6 dBd, but a feedpoint impedance of $73 + j\ 470\ \Omega$.

The Hentenna has nearly the same gain, but a clever feeding with an impedance at

XX of 50-70 \square +/- j 0 Ω .

The parts have the following lengths:

1, 6, 7: $0,15\ \lambda$

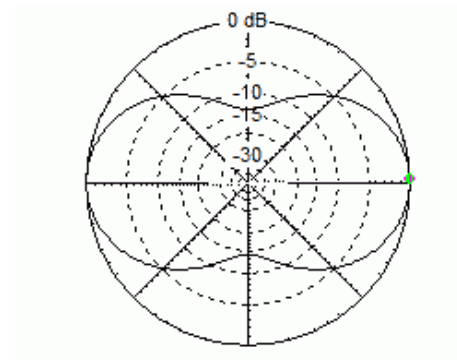
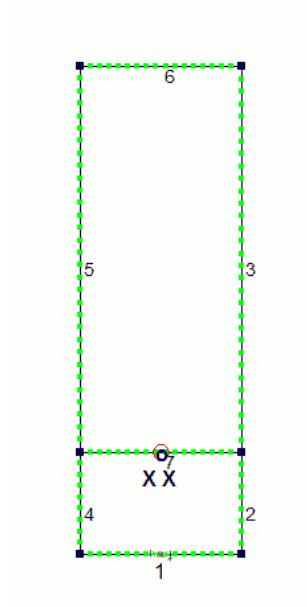
2, 4: $0,1\ \lambda$

3, 5: $0,5\ \lambda$

The data of the Hentenna-Loop:

Gain 3,05 dBd

3-dB-Azimuth-angle $88,2^\circ$, 3-dB-Elevation-angle $69,5^\circ$



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!

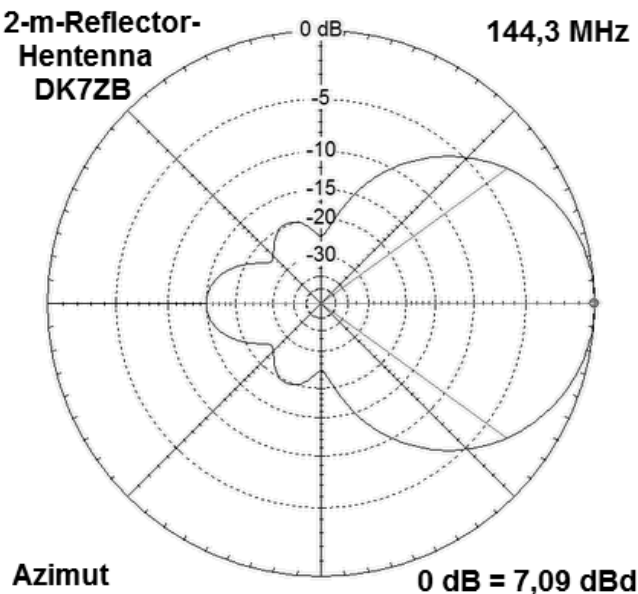


The mechanical details of the construction.

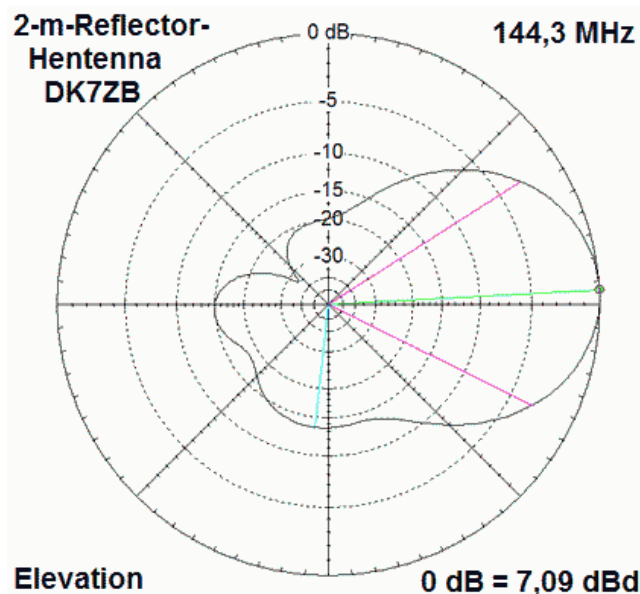
The loop edges and the connections are made of copper

fittings for 10-mm-tubes

2-m-Reflector-
Hentenna
DK7ZB



2-m-Reflector-
Hentenna
DK7ZB



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

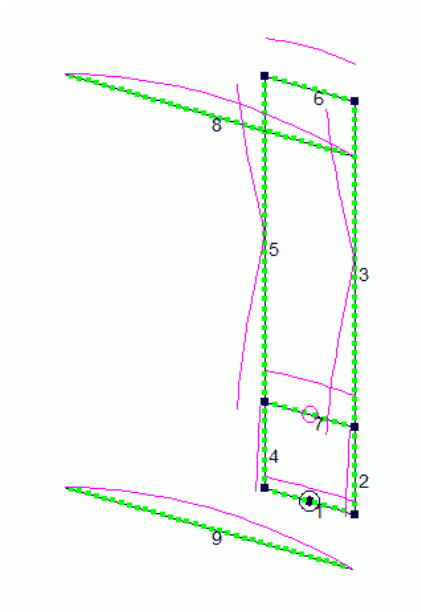
Impedance 50 +/- j 0 Ω

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

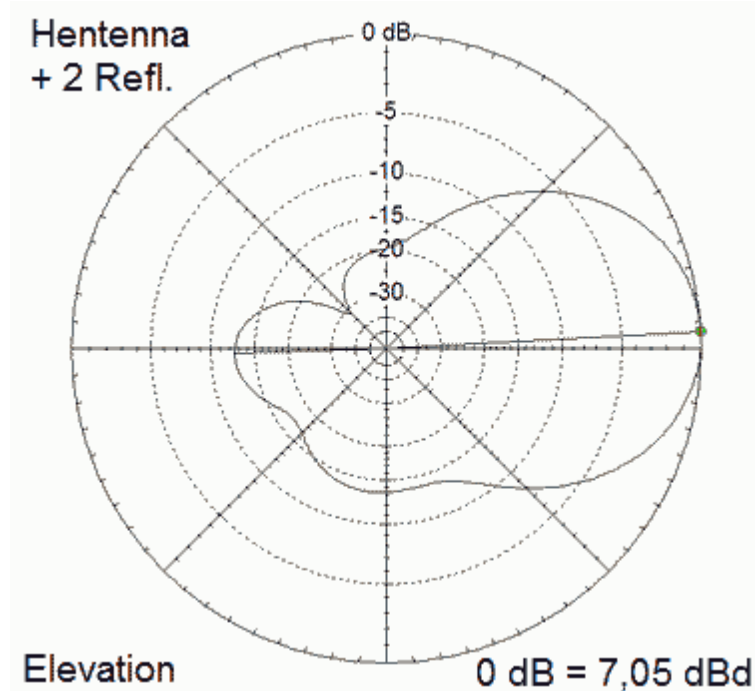
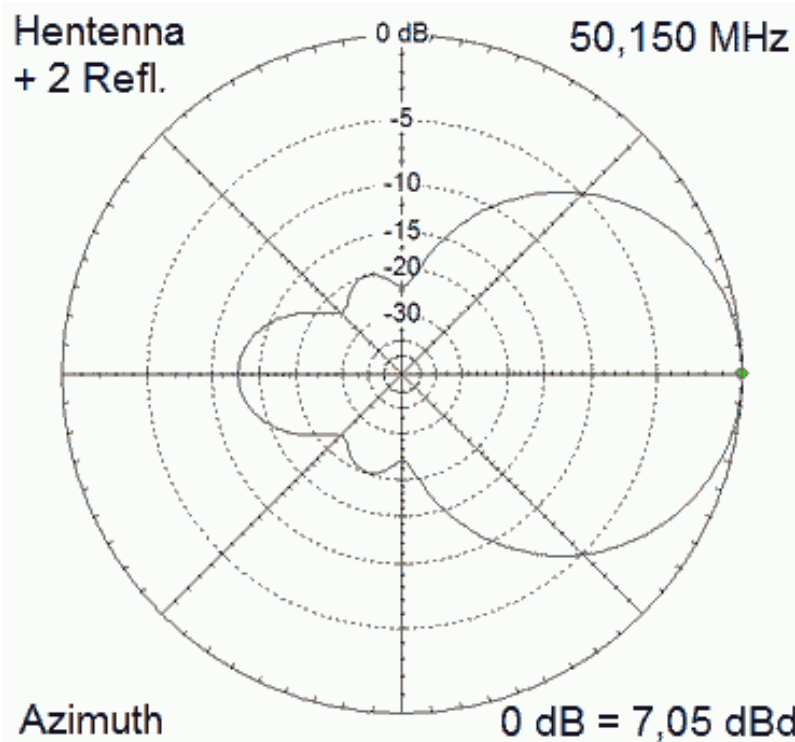
Distance Ref-Loop 975 mm, all elements 12 mm diameter



The 50-MHz-Reflector-Hentenna

built by Luis, [HI8LAM](#)

in FK58BL



The 70-MHz-Reflector-Hentenna by DK7ZB

Pattern and gain are the same as with the 50-MHz-antenna,
dimensions for 12-mm-elements in the table below

Segments	Length
1, 6, 7 (hor)	645 mm
3, 5 (ver)	1679 mm
2, 4 (ver)	448 mm
8, 9 (Ref)	2072 mm
Distance Ref-Loop	680 mm

