



# The Hentenna

The Japanese  
"miracle" wire\*

Field report by OE9HRV

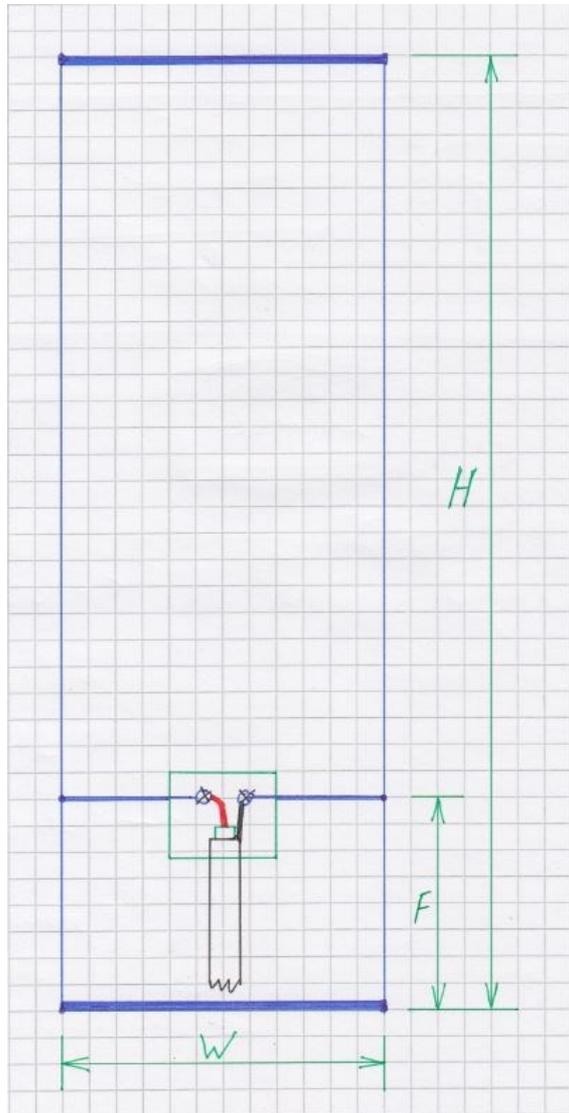
➤ The Hentenna was developed by Japanese hams in the 1970s

- The Hentenna was developed by Japanese hams in the 1970s
- The first article in English was published in the journal QST with the title:  
*The Hentenna - The Japanese 'Miracle' Wire\**

- The Hentenna was developed by Japanese hams in the 1970s
- The first article in English was published in the journal QST with the title:  
*The Hentenna - The Japanese 'Miracle' Wire\**
- Many resources are available on the Internet for constructing the antenna for the amateur radio bands

- The Hentenna was developed by Japanese hams in the 1970s
- The first article in English was published in the journal QST with the title:  
*The Hentenna - The Japanese 'Miracle' Wire\**
- Many resources are available on the Internet for constructing the antenna for the amateur radio bands
- Main features: 3 dBd gain, low radiation angle, wide bandwidth

# Antenna layout



## Dimensions:

Height (H) =  $1/2$  lambda

Width (W) =  $1/6$  lambda

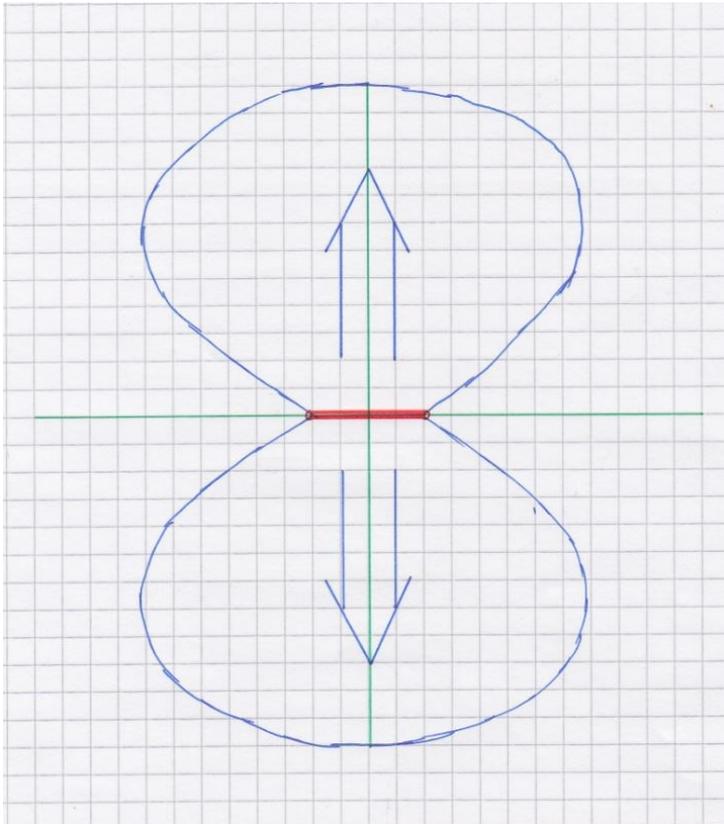
Feedpoint (F) :  $1/10$  from  
bottom element

about 60 Ohm +-

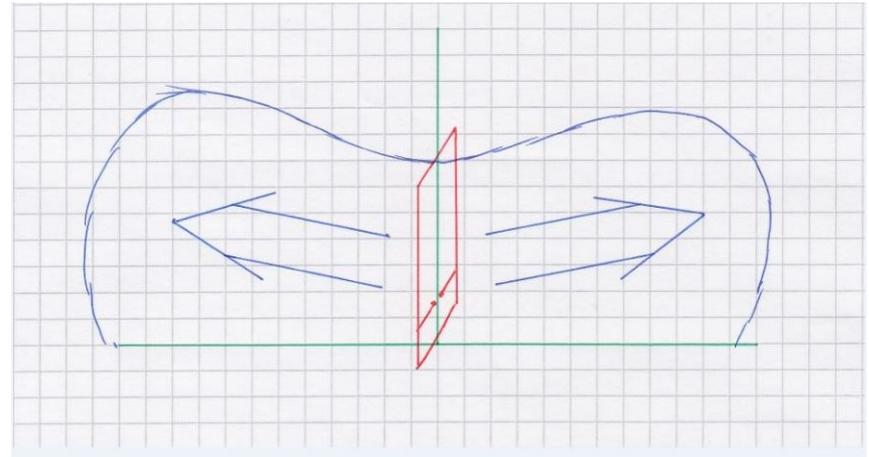
SWR 1:1.4

# Electrical properties

## Azimuth

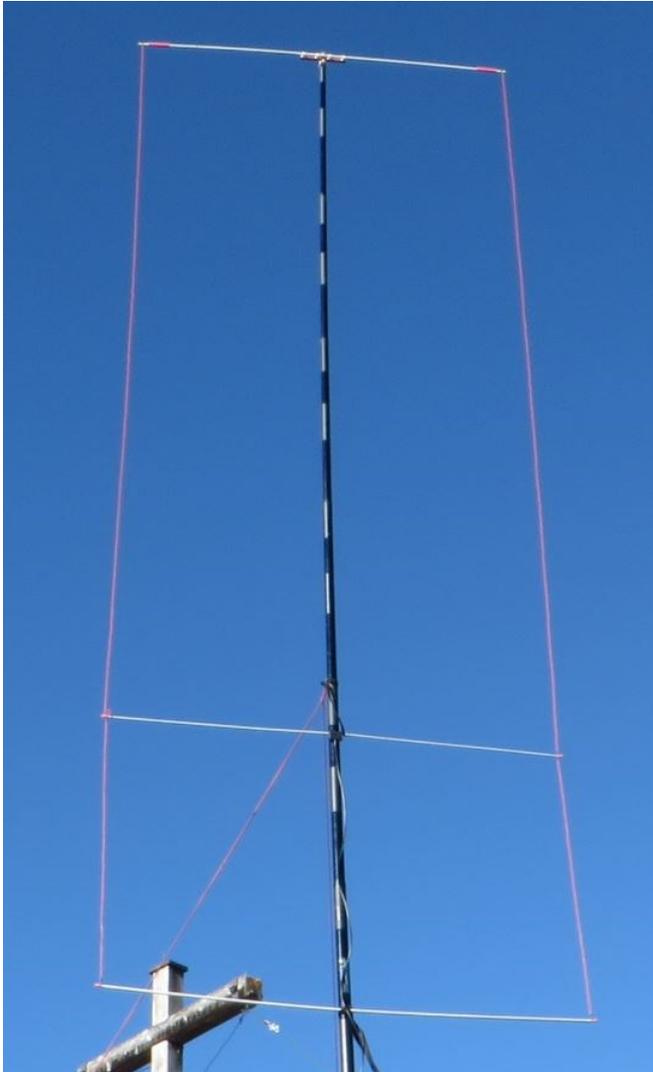


## Elevation



Elevation angle is about  
13 degrees, radiation  
is horizontally polarized,  
good for DXing!

# Example design for 28 MHz



## **Dimensions:**

Height (H) = 526 cm

Width (W) = 175 cm

Feedpoint (F) : 120 cm

## **Materials:**

Three aluminum tubes  
(12 mm and 6 mm)

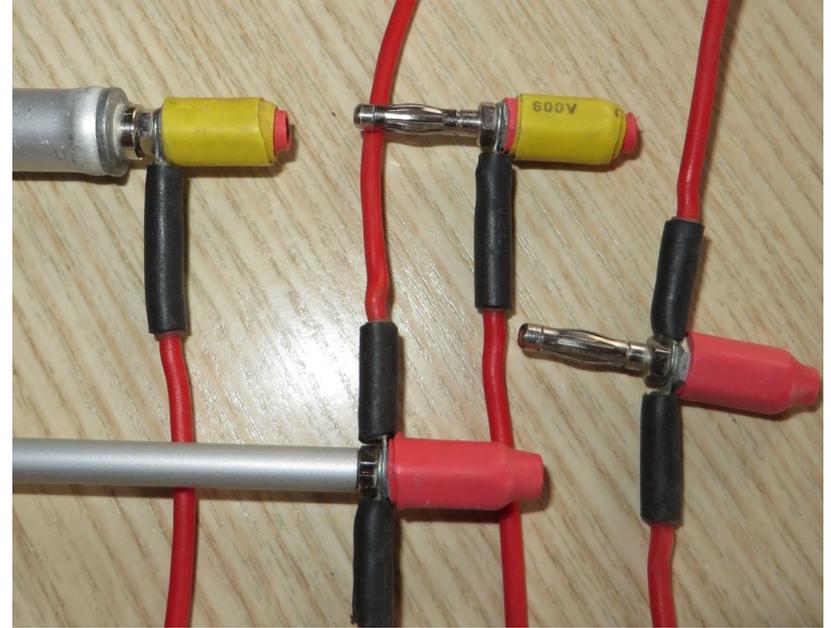
Copper stranded wire  
(1.5 mm<sup>2</sup>)

Telescopic mast (12m)

# My homebrew design



12 mm aluminium tubes  
assembly banana jacks



banana jacks  
with copper  
stranded wire

# My homebrew design

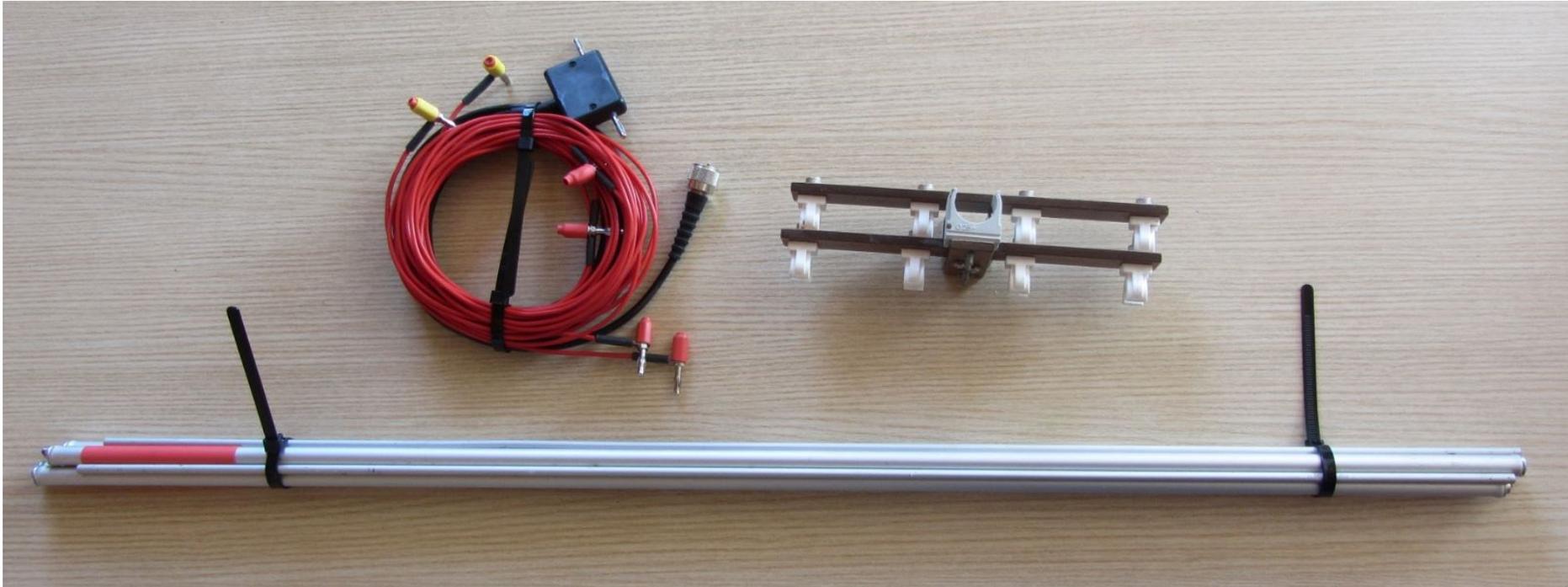


Feedpoint  
(aluminum tubes 6 mm)



Mast attachment

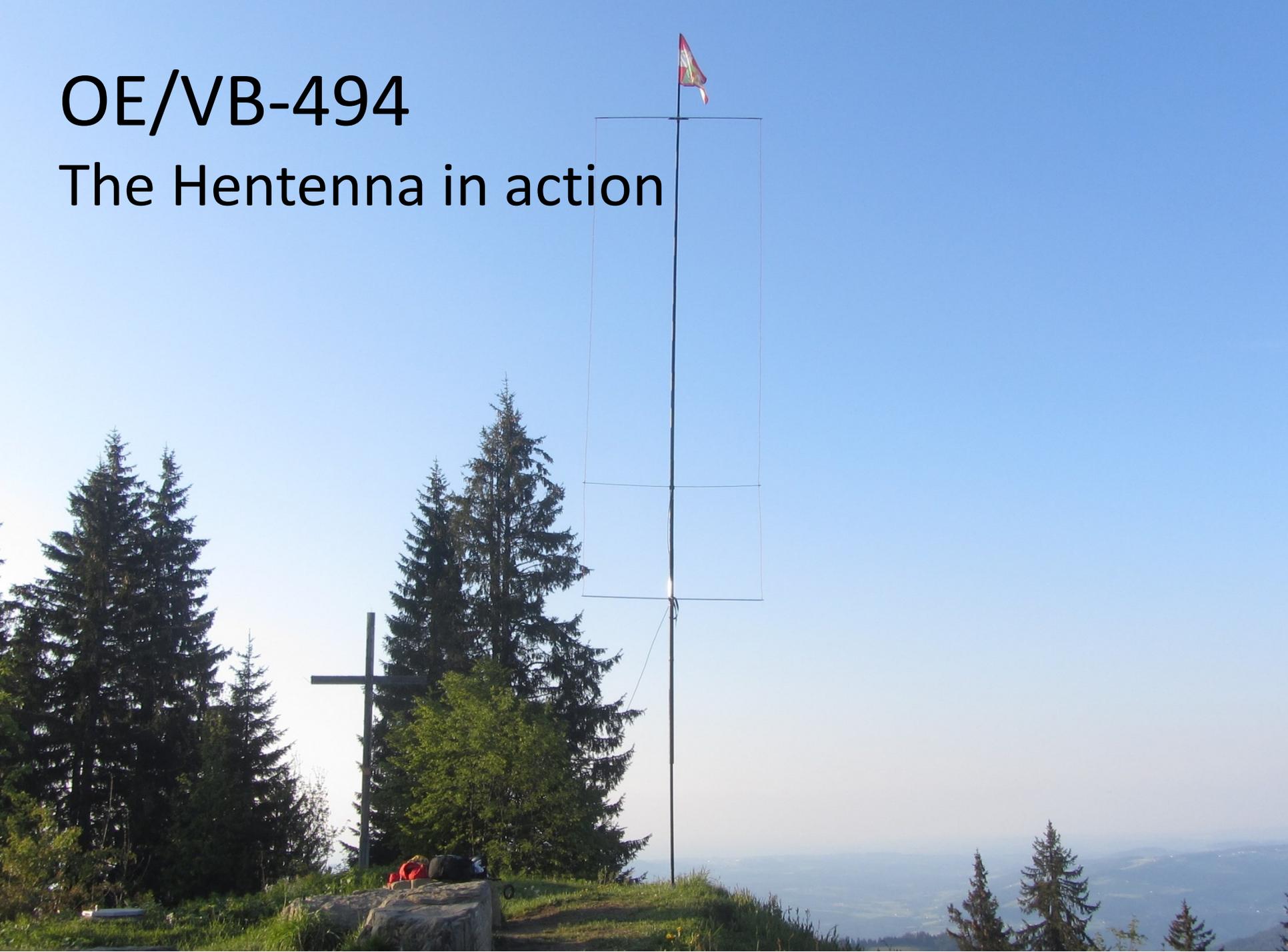
All components, ready to go



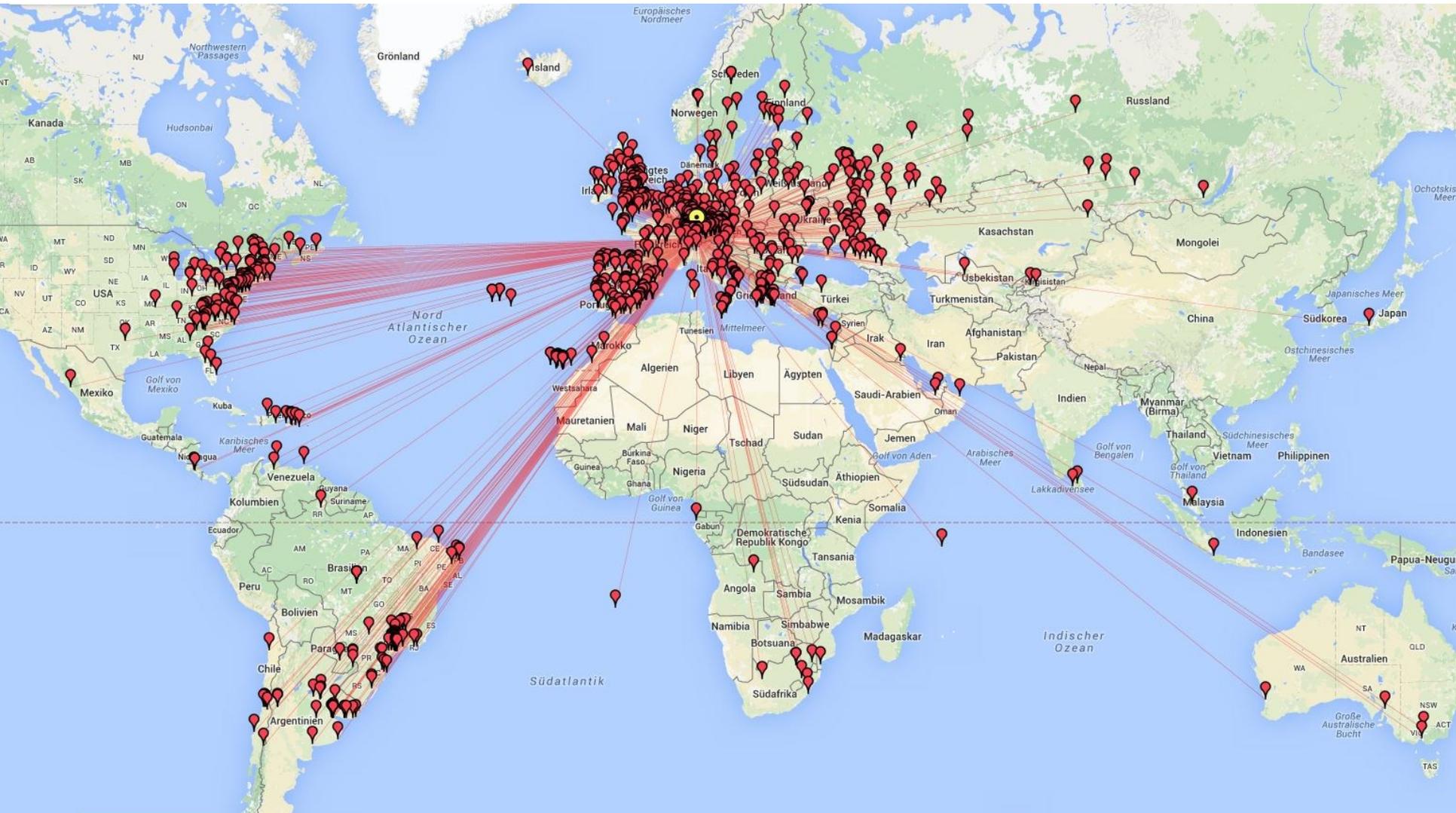
weight is 1.1 kg + fibreglass pole

OE/VB-494

The Hentenna in action



# Results for the 10m SOTA challenge



OE9HRV/P - JN47UI  
<http://www.opencontest.org/qsoimap>

# Hentenna vs Dipole

Simultaneous activation of two summits:

OE9HRV/P  
on OE/VB-487  
1537m ASL

HB9BIN/P  
on HB/BE-102  
1382m ASL

10m Hentenna  
KX3 and  
amplifier  
150 watts

10m full-sized  
rotary dipole  
6m above ground  
FT-857D  
100 watts

Time	Call	Band	Mode	Notes	OE9HRV RST geg.	OE9HRV RST erh.	HB9BIN RST geg.	HB9BIN RST erh.	DXCC
12:53z	US4IGH	28MHz	SSB	Sergei	57	58			UR
<b>12:54z</b>	<b>PP5NY</b>	<b>28MHz</b>	<b>SSB</b>	<b>IKE</b>	<b>55</b>	<b>56</b>	<b>59</b>	<b>57</b>	PY
13:03z	UT3MA	28MHz	SSB	Valery	57	57			UR
13:08z	VE1WT	28MHz	SSB	Phill	44	55			VE
13:11z	UR8MG	28MHz	SSB	Vlad	55	57			UR
13:33z	WX3B	28MHz	SSB	James	58	57			W
13:34z	K2TTT	28MHz	SSB	Jay	57	58			W
13:36z	AC1Z	28MHz	SSB	Bob	55	57			W
<b>13:37z</b>	<b>K1ZZ</b>	<b>28MHz</b>	<b>SSB</b>	<b>Dev</b>	<b>59</b>	<b>59</b>	<b>59</b>	<b>55</b>	W
<b>13:48z</b>	<b>WA5FWC</b>	<b>28MHz</b>	<b>SSB</b>	<b>Gary</b>	<b>56</b>	<b>55</b>	<b>55</b>	<b>57</b>	W
<b>13:53z</b>	<b>VA1SEA</b>	<b>28MHz</b>	<b>SSB</b>	<b>Tom</b>	<b>59</b>	<b>59</b>	<b>55</b>	<b>56</b>	VE
13:59z	K4MIJ	28MHz	SSB	Ralph	59	58			W
<b>14:01z</b>	<b>W1OW</b>	<b>28MHz</b>	<b>SSB</b>	<b>Will</b>	<b>59</b>	<b>59</b>	<b>55</b>	<b>57</b>	W
<b>14:05z</b>	<b>VE3LOE</b>	<b>28MHz</b>	<b>SSB</b>	<b>Ralph</b>	<b>57</b>	<b>58</b>	<b>57</b>	<b>56</b>	VE
14:15z	W4KA	28MHz	SSB	David	57	57			W
<b>14:18z</b>	<b>N0FW</b>	<b>28MHz</b>	<b>SSB</b>	<b>Peter</b>	<b>59</b>	<b>59</b>	<b>55</b>	<b>55</b>	W
14:24z	KC1CCV	28MHz	SSB	Den	55	55			W
14:27z	KC8HF	28MHz	SSB	Glenn	59	58			W
14:29z	KD4WKP	28MHz	SSB	Danny	57	58			W
<b>14:31z</b>	<b>KD2FND</b>	<b>28MHz</b>	<b>SSB</b>	<b>Rich</b>	<b>58</b>	<b>59</b>	<b>55</b>	<b>55</b>	W
<b>14:35z</b>	<b>K4MZR</b>	<b>28MHz</b>	<b>SSB</b>	<b>Gregg</b>	<b>59+</b>	<b>59</b>	<b>55</b>	<b>45</b>	W
14:42z	KW4FF	28MHz	SSB	Albert	58	58			W
<b>14:45z</b>	<b>N4EX</b>	<b>28MHz</b>	<b>SSB</b>	<b>Rich</b>	<b>59</b>	<b>58</b>	<b>55</b>	<b>44</b>	W
<b>14:49z</b>	<b>VE2FRP</b>	<b>28MHz</b>	<b>SSB</b>	<b>Rigo</b>	<b>59</b>	<b>58</b>	<b>55</b>	<b>42</b>	VE
14:59z	WA2BJN	28MHz	SSB	Rich	57	58			W
<b>15:04z</b>	<b>KB1WSR</b>	<b>28MHz</b>	<b>SSB</b>	<b>Ray</b>	<b>59+</b>	<b>59</b>	<b>57</b>	<b>43</b>	W
15:10z	KB1RJC	28MHz	SSB	Herman	57	58			W
15:15z	VA3VET	28MHz	SSB	Bob	55	55			VE
15:19z	KB1RJD	28MHz	SSB	Merle	56	58			W
15:23z	N4DXS	28MHz	SSB	Stephan	57	57			W
<b>15:37z</b>	<b>N1GB</b>	<b>28MHz</b>	<b>SSB</b>	<b>George</b>	<b>58</b>	<b>59</b>	<b>53</b>	<b>33</b>	W
15:46z	N2BTD	28MHz	SSB	Brian	55	55			W

# Result:

Time	Call	Band	Mode	Notes	OE9HRV RST geg.	OE9HRV RST erh.	HB9BIN RST geg.	HB9BIN RST erh.	DXCC
	<b>average</b>				<b>58</b>	<b>58</b>	<b>56</b>	<b>50</b>	

- The Hentenna was as much as 3 S units stronger compared to the dipole...

```
Wed 15:47 HB9BIN/P on HB/BE-102 28.477
           33 IN VT (Posted by N1GB)
Wed 15:46 OE9HRV/P on OE/VB-487 28.477 ssb
           with hb9bin/p on HB/BE-102, still on (Posted by DJ5AV)
Wed 15:46 OE9HRV/P on OE/VB-487 28.477 ssb
           59 in Vermont (Posted by N1GB)
```

- Jürg HB9BIN was only able to make contacts with 13 out of the 32 DX stations with his dipole. He couldn't hear the other 19 and they couldn't hear him.

The portable  
Hentenna is  
mechanically  
feasible up to  
the 15m band



# Hentenna: Pros and Cons



# Hentenna: Pros and Cons



- + Outperforms all other portable solutions
- + Excellent DX antenna
- + Needs very little space
- + Easy to reassemble

# Hentenna: Pros and Cons



- + Outperforms all other portable solutions
- + Excellent DX antenna
- + Needs very little space
- + Easy to reassemble
- Monoband only
- Requires a long telescopic mast

# Hentenna: Pros and Cons



- + Outperforms all other portable solutions
- + Excellent DX antenna
- + Needs very little space
- + Easy to reassemble
- Monoband only
- Requires a long telescopic mast

I strongly recommend the Hentenna because working with it is lots of fun!

**Thank you for your  
attention**

