

Deutscher Amateur-Radio-Club e.V.

Bundesverband für Amateurfunk in Deutschland • Mitglied der „International Amateur Radio Union“



Ortsverband Delmenhorst I-18

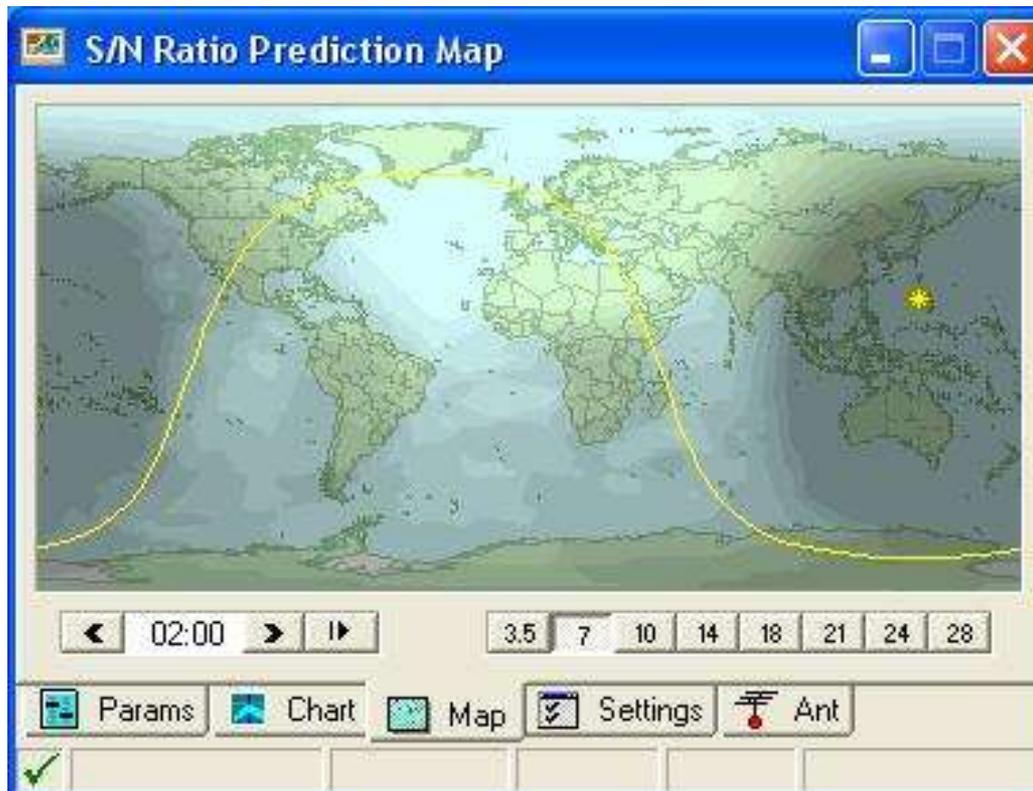
Draht-Richtantennen

Beispiel: V-Antenne

10. Antennentestwochenende

27. – 29. April 2018

Vorhersage der Ausbreitungsbedingungen



Freeware von VE2NEA

<http://www.dxatlas.com/HamCap/>

Propagation-Programm VOACAP
(wird durch HamCap aufgerufen)

<http://www.greg-hand.com>

Antennensimulation

MMANA-GAL basic C:\MMANA-GAL_Basic\ANT\VHF_beams\3DQ6.MAA

Geometrie Antennenansicht Berechnen Fernfelddarstellung

Name 3ele (Diamond) Quad 6m Freq 50.25 MHz Lambda

Drähte 12 Automat. Segmentation: DM1 400 DM2 40 SC 2 EC 2 Verbunden halten

| No. | X1(m) | Y1(m) | Z1(m) | X2(m) | Y2(m) | Z2(m) | R(mm) | Seg. |
|-----|--------|--------|-------|--------|-------|--------|-------|------|
| 1 | 0.0 | 1.093 | 0.0 | 0.0 | 0.0 | -1.093 | 0.8 | -1 |
| 2 | 0.0 | -1.093 | 0.0 | 0.0 | 0.0 | -1.093 | 0.8 | -1 |
| 3 | 0.0 | -1.093 | 0.0 | 0.0 | 0.0 | 1.093 | 0.8 | -1 |
| 4 | 0.0 | 1.093 | 0.0 | 0.0 | 0.0 | 1.093 | 0.8 | -1 |
| 5 | -1.161 | 1.118 | 0.0 | -1.161 | 0.0 | -1.118 | 0.8 | -1 |
| 6 | -1.161 | -1.118 | 0.0 | -1.161 | 0.0 | -1.118 | 0.8 | -1 |
| 7 | -1.161 | -1.118 | 0.0 | -1.161 | 0.0 | 1.118 | 0.8 | -1 |
| 8 | -1.161 | 1.118 | 0.0 | -1.161 | 0.0 | 1.118 | 0.8 | -1 |
| 9 | 0.839 | 1.043 | 0.0 | 0.839 | 0.0 | -1.043 | 0.8 | -1 |

Quellen 1

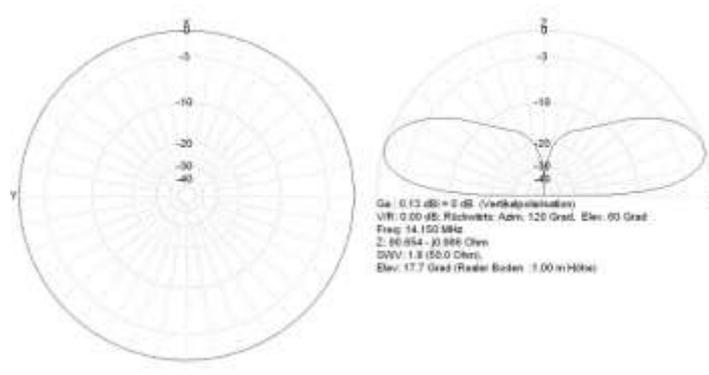
| No. | PULSE | Volt. V | Phase dg |
|------|-------|---------|----------|
| 1 | w2e | 1.0 | 0.0 |
| next | | | |

Lasten 0 (L - uH; C - pF; R/jX - Ohm) Lasten verwenden

| No. | PULSE | Type | L/R/A0 | C/jX/B0 | Q/A1 | F/B1 |
|------|-------|------|--------|---------|------|------|
| next | | | | | | |

**MMANA-GAL Basic Freeware
(deutsche Version)**

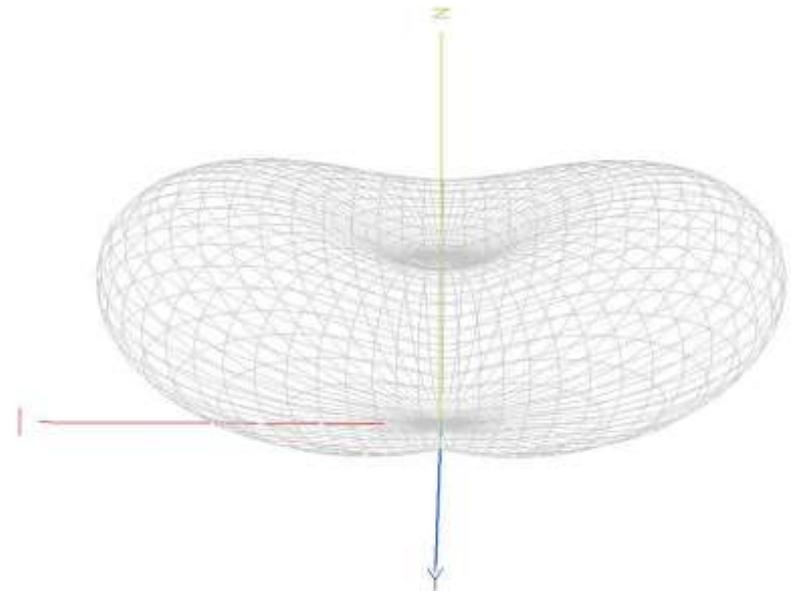
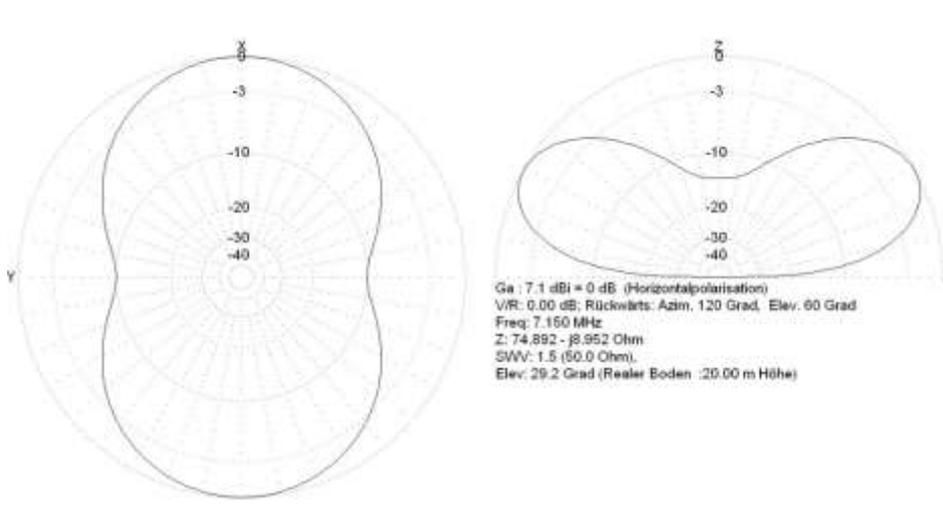
<http://dl2kq.de/mmana/4-7.htm>



Antennensimulation

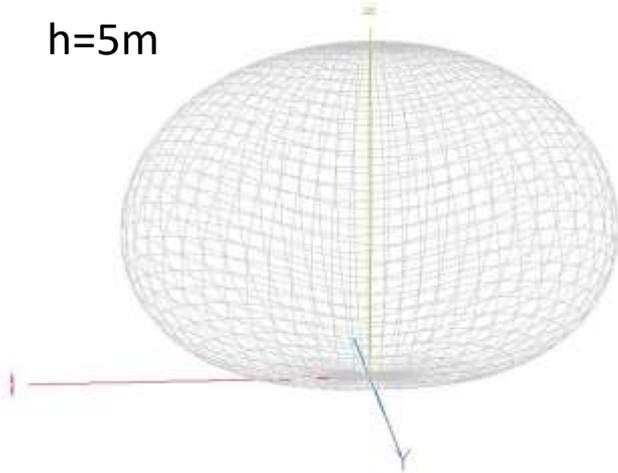
horizontal

Beispiel: 40m-Dipol ($1/2 \lambda$), 20m hoch

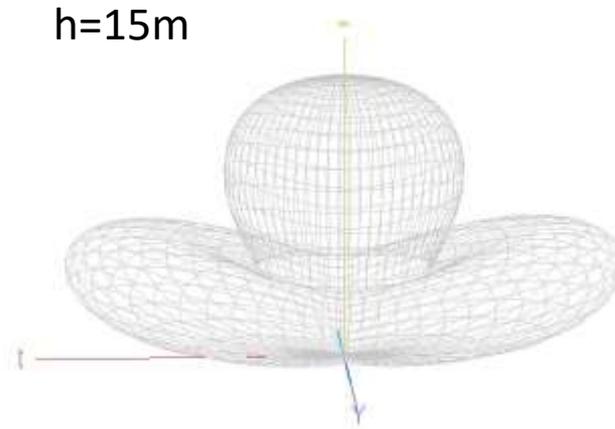


Montagehöhe 20m-Dipol ($\frac{1}{2} \lambda$) über realem Grund

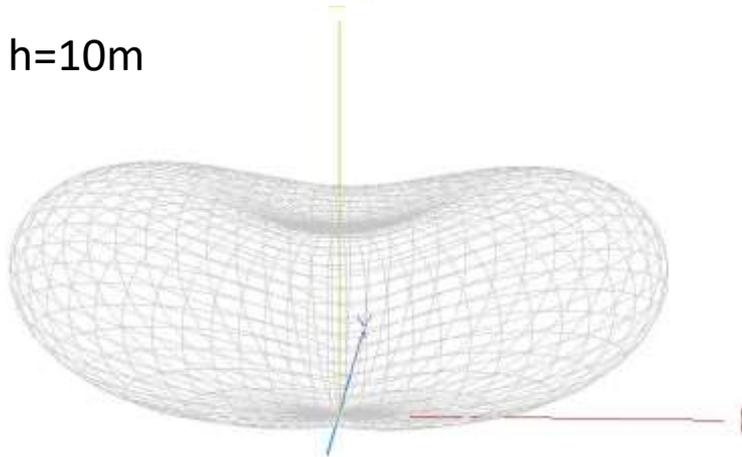
h=5m



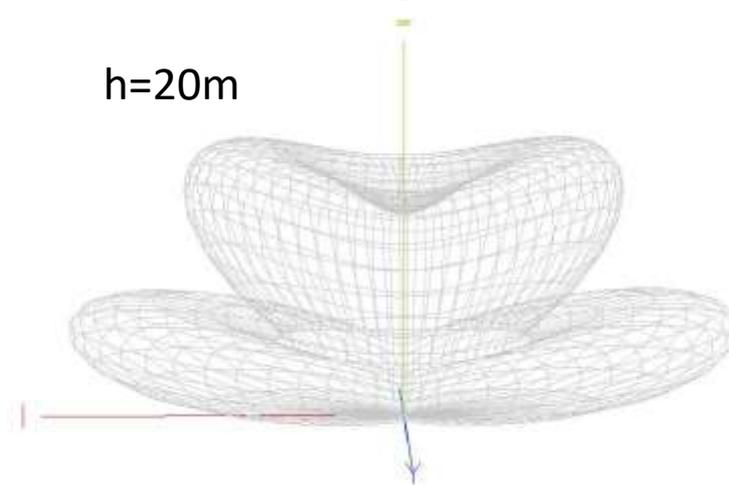
h=15m



h=10m

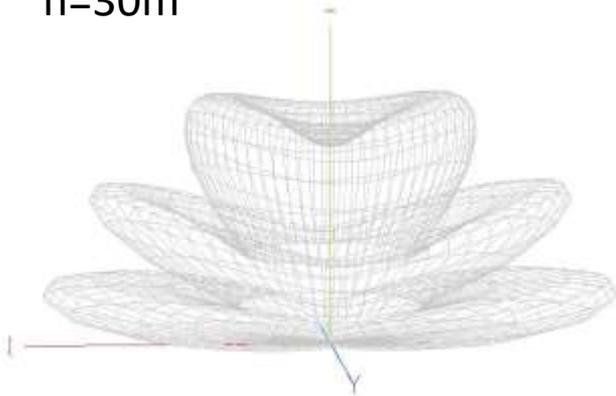


h=20m



Montagehöhe $\frac{1}{2} \lambda$ -Dipol über Grund

h=30m



MMANA-GAL basic

WELLENLÄNGE = 21.187 (m)
PULSENANZAHL = 45
DER NIEDRIGSTE PUNKT DER ANTENNE = 30.000 M

Freq 14.150 MHz

Erdboden
 Freiraum
 Ideal
 Real

Höhe 30.00 m

Material Cu Draht

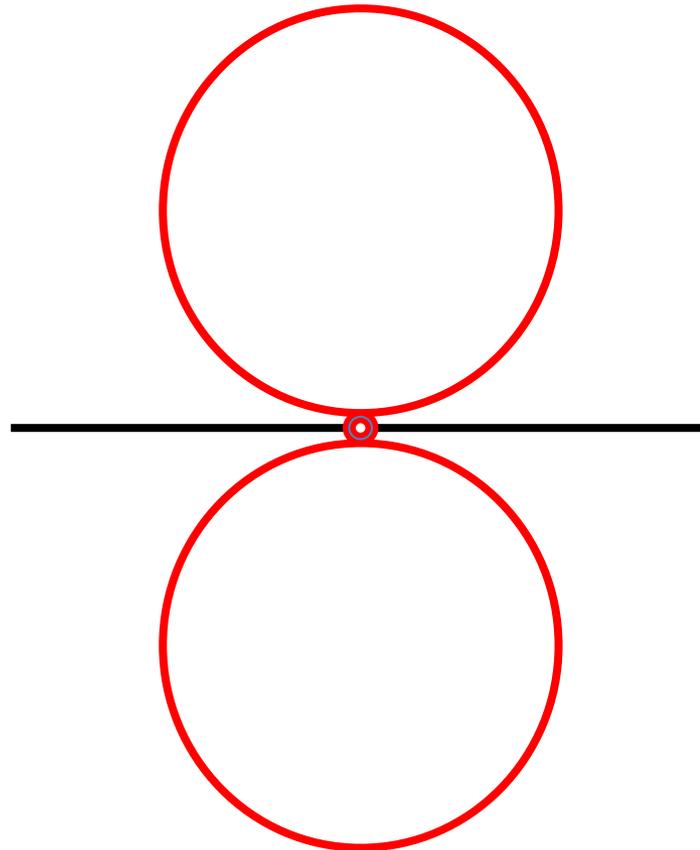
QUELLE U (V) I (mA) Z (Ohm) SWW
 w1c 1.00+j0.00 9.47-j4.43 86.60+j40.55 2.24

STRÖME...
 FERNFELD ...
 KEINE FEHLER
 0.06 sec

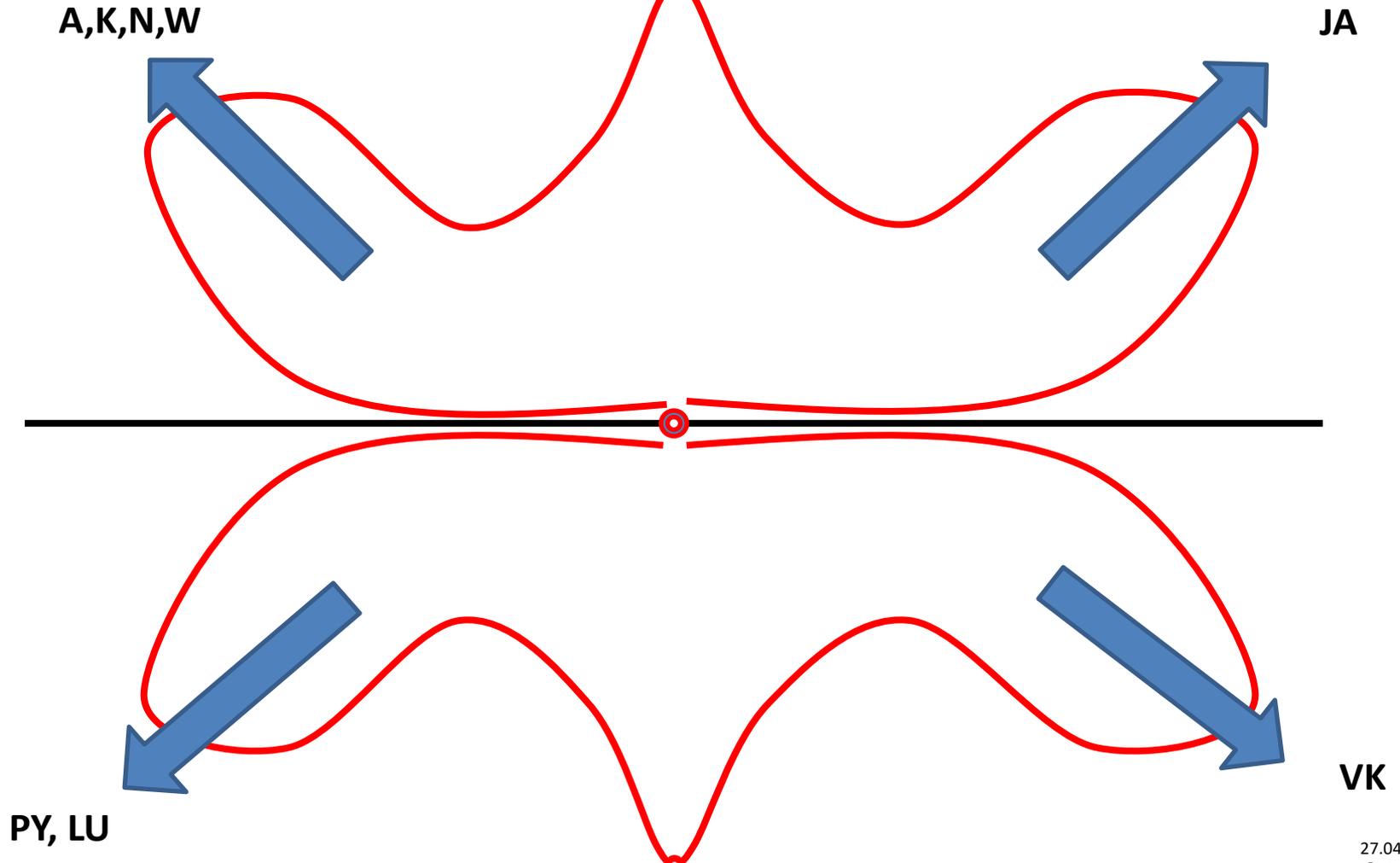
| Nr. | F (MHz) | R (Ohm) | jX (Ohm) | SWW 50 | Gh dBd | Ga dBi | V/R dB | Elev. | Boden | Höhe | Polar. |
|-----|---------|---------|----------|--------|--------|--------|--------|-------|-------|------|--------|
| 5 | 14.15 | 86.6 | 40.55 | 2.24 | --- | 7.4 | --- | 9.9 | Real | 30.0 | hori. |
| 4 | 14.15 | 86.08 | 35.64 | 2.13 | --- | 7.22 | --- | 14.8 | Real | 20.0 | hori. |
| 3 | 14.15 | 76.91 | 59.02 | 2.73 | --- | 7.64 | --- | 19.6 | Real | 15.0 | hori. |
| 2 | 14.15 | 81.6 | 24.55 | 1.85 | --- | 6.89 | --- | 29.5 | Real | 10.0 | hori. |
| 1 | 14.15 | 92.97 | 80.59 | 3.51 | --- | 5.74 | --- | 68.4 | Real | 5.0 | hori. |

Start Optimierung Optimierungslg Graphiken Drahteditor Elemente bearbeiten

$1/2\lambda$ -Dipol



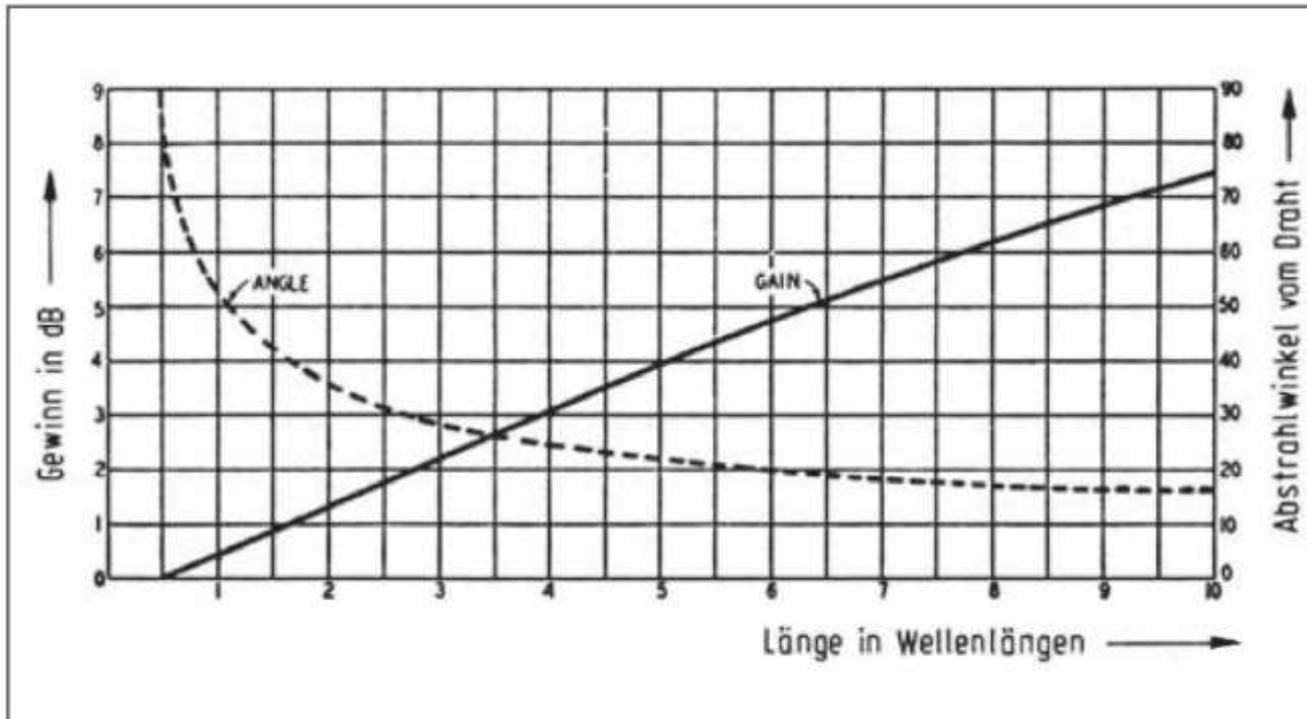
Oberwellen-Dipol

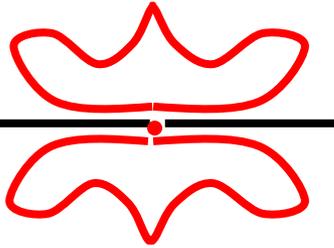


Gewinn Oberwellen-Dipol

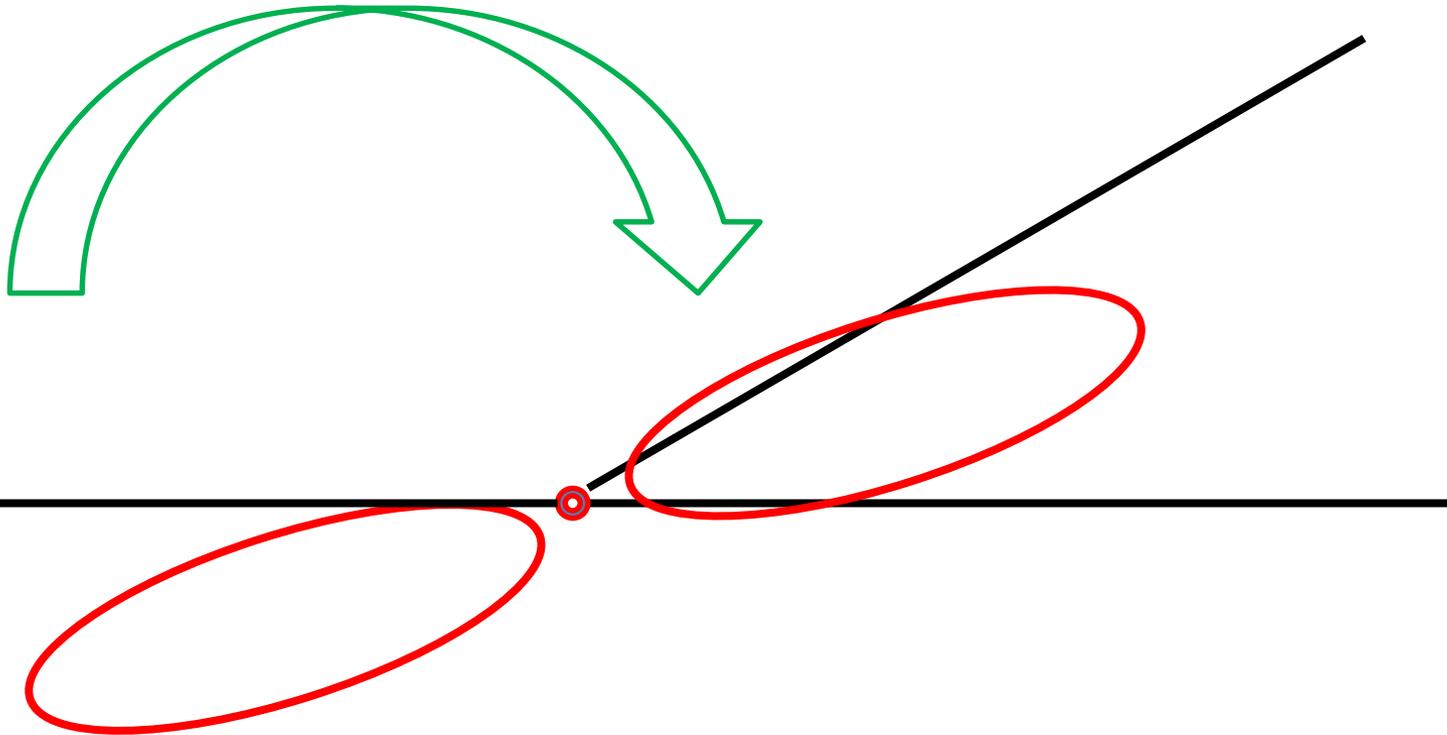
| Antennenlänge (in λ) | Leistungsgewinn (in dB) | max. Strahlungswinkel |
|-------------------------------|-------------------------|-----------------------|
| 1/2 | 0 | 60° |
| 1 | 1,2 | 54° |
| 2 | 1,4 | 36° |
| 4 | 2,1 | 25° |
| 6 | 3,1 | 20° |
| 8 | 4,3 | 18° |
| 10 | 5,6 | 17° |
| 12 | 7,2 | 16° |

Gewinn Oberwellen-Dipol



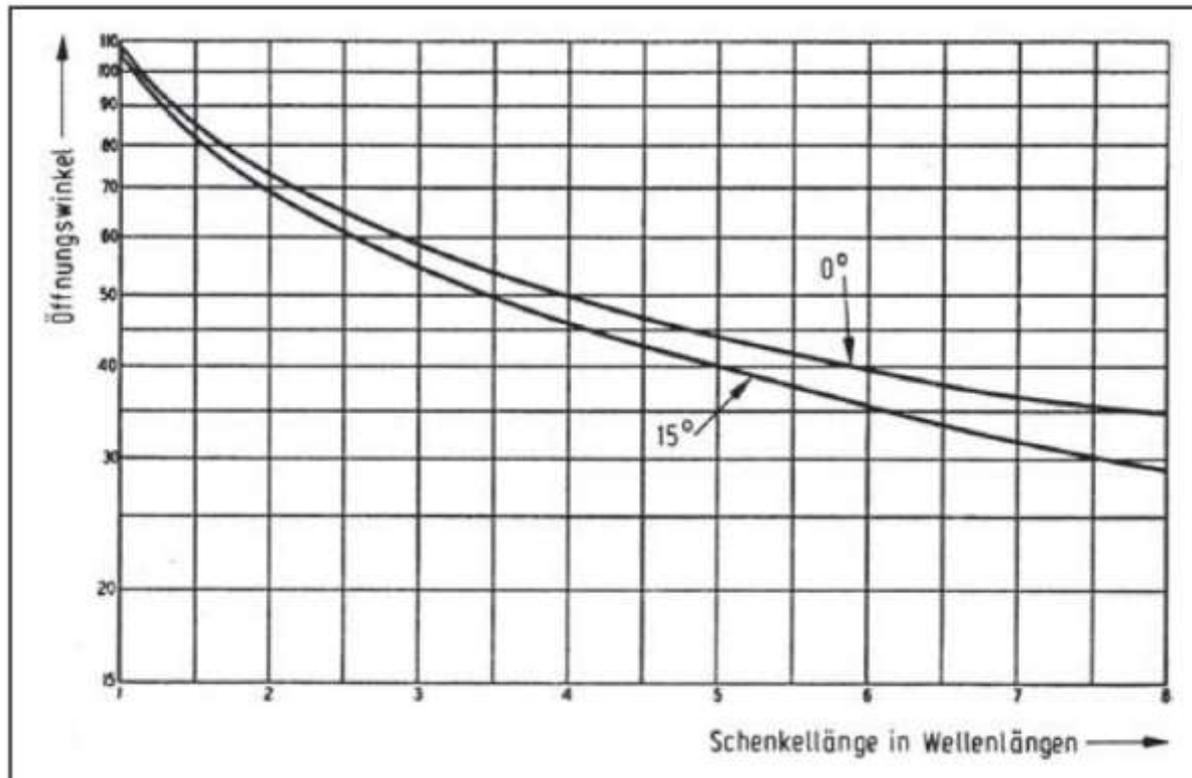


Die V-Antenne ($\gg \lambda$)



Die V-Antenne

Öffnungswinkel



Die V-Antenne

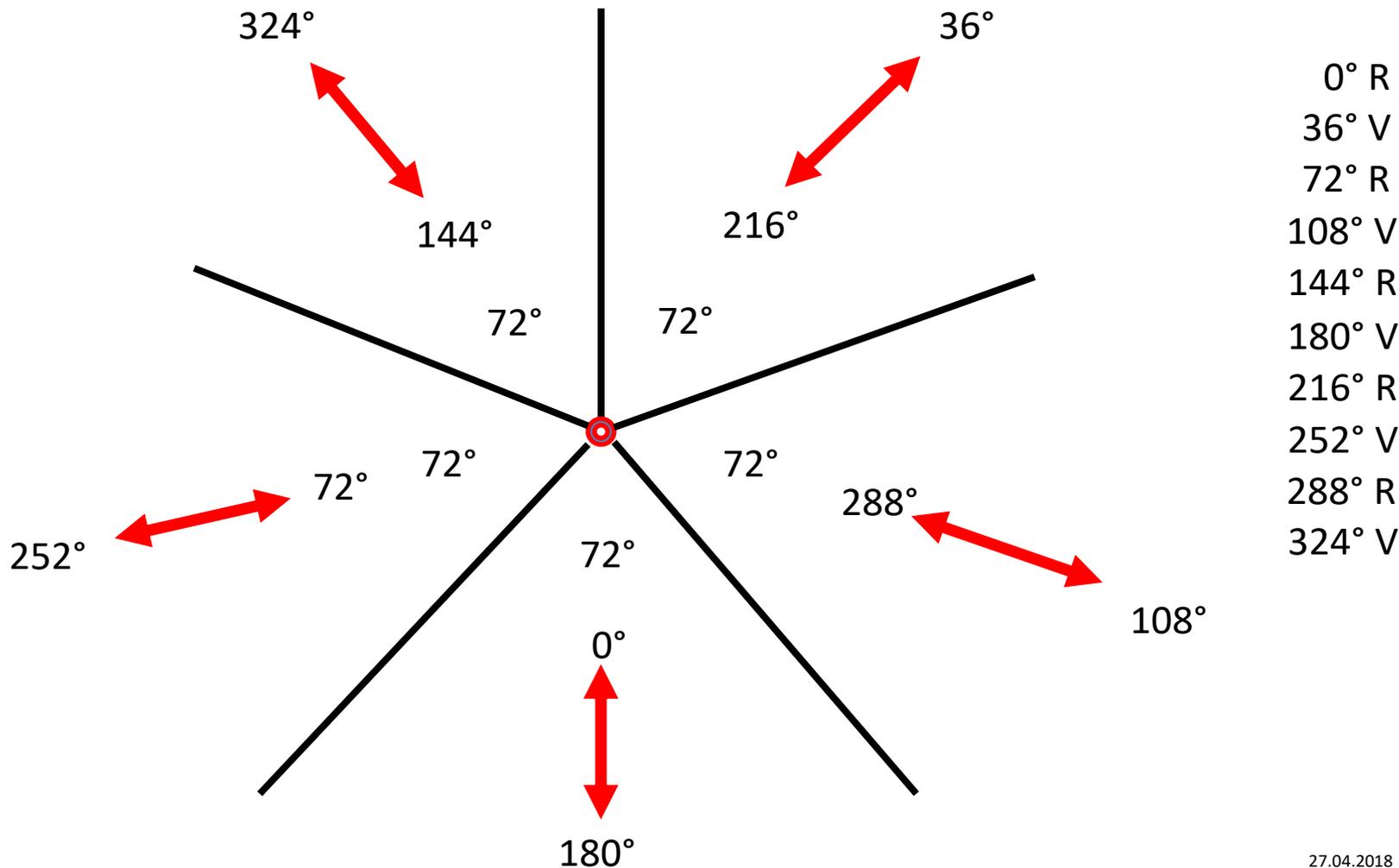
Öffnungswinkel

| Frequenz MHz | Schenkel- länge in Wellen- längen | Gewinn dB | Öffnungs- winkel | Schenkel- länge |
|-----------------|--|--------------|---------------------|--------------------|
| 7.050 | 2 | 5 | 70° | 84.6 m |
| 14.150 | 4 | 8 | 52° | 84.2 m |
| 21.300 | 6 | 9.5 | 45° | 83.3 m |
| 28.500 | 8 | 10.5 | 39° | 83.6 m |

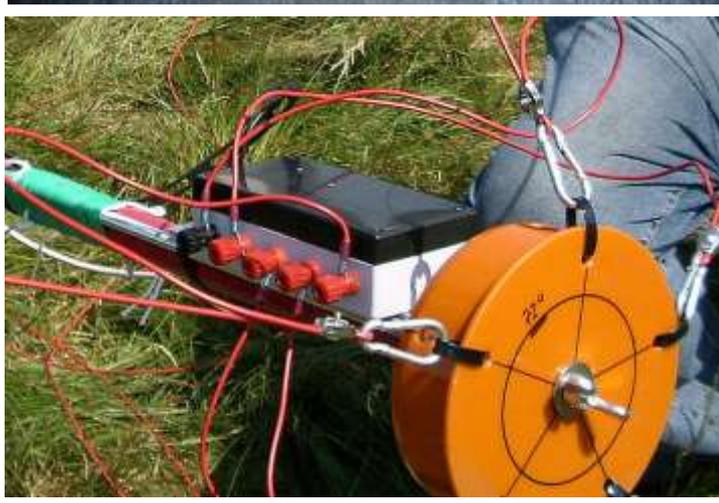


Ortsverband Delmenhorst I-18

Der 5-fach V-Stern

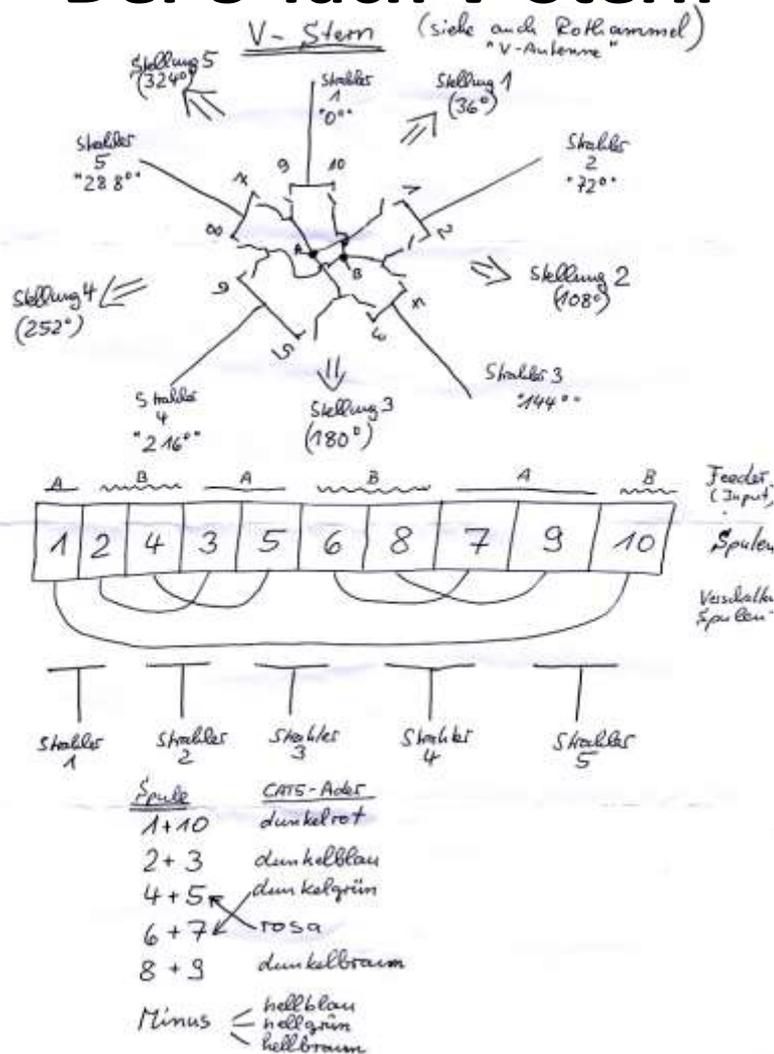


Der 5-fach V-Stern



Ortsverband Delmenhorst I-18

Der 5-fach V-Stern



Der 5-fach V-Stern

1. QSO mit 100W auf 40m in SSB

2. QSO mit 100W auf 20m in SSB

Perth Western Australia



WAZ 29
ITU 58

Ex VK9XB

To: **DK0FC/P** Via: _____

Confirming two-way QSO / SWL report

| Date | Time | Band | Mode | RST | ne TC | Band MHz | Mode 2-way | Report RST |
|-------------|-------|------|------|-----|-------|----------|------------|------------|
| 30 May 2009 | 17:02 | 40M | SSB | 57 | | | | |

Steve Chamberlain
P.O. Box 123
Cannington 6987 WA
AUSTRALIA

PSE QSL TNX

73!

IARU REGION 3 DXCC WPX **HONG KONG** PORTABLE MOBILE
 CQZ 24 LANTAU ISLAND
 ITU 44

 IOTA AS-006

VR2PW QTH LOCATOR OL62XG
 22.17.00 N
 113.56.00 E
 ECHOLINK NODE 301214

VIA: OP: ANTONIO CARABILLO
 P.O. BOX 92153, TSIM SHA TSUI POST OFFICE, KOWLOON HONG KONG
 E-mail: vr2pw@netvigator.com

| TO RADIO | DAY / MONTH / YEAR | UTC | MHz | RST | 2WAY |
|----------|--------------------|------------------|-----|-----|------|
| DK0FC | 30/5/09 | 17 ³⁹ | 14 | 58 | SSB |

ANTENNAS:
 MEMBER OF: DIAMOND HM6
 YAesu ATAS 120A
 HI-Q 5 / 160 RT
 DIAMOND MD200
 SUPER ANTENNAS YAGI 3 EL
 BUDDIPOLE
 HIGH SIERRA SIDEKICK

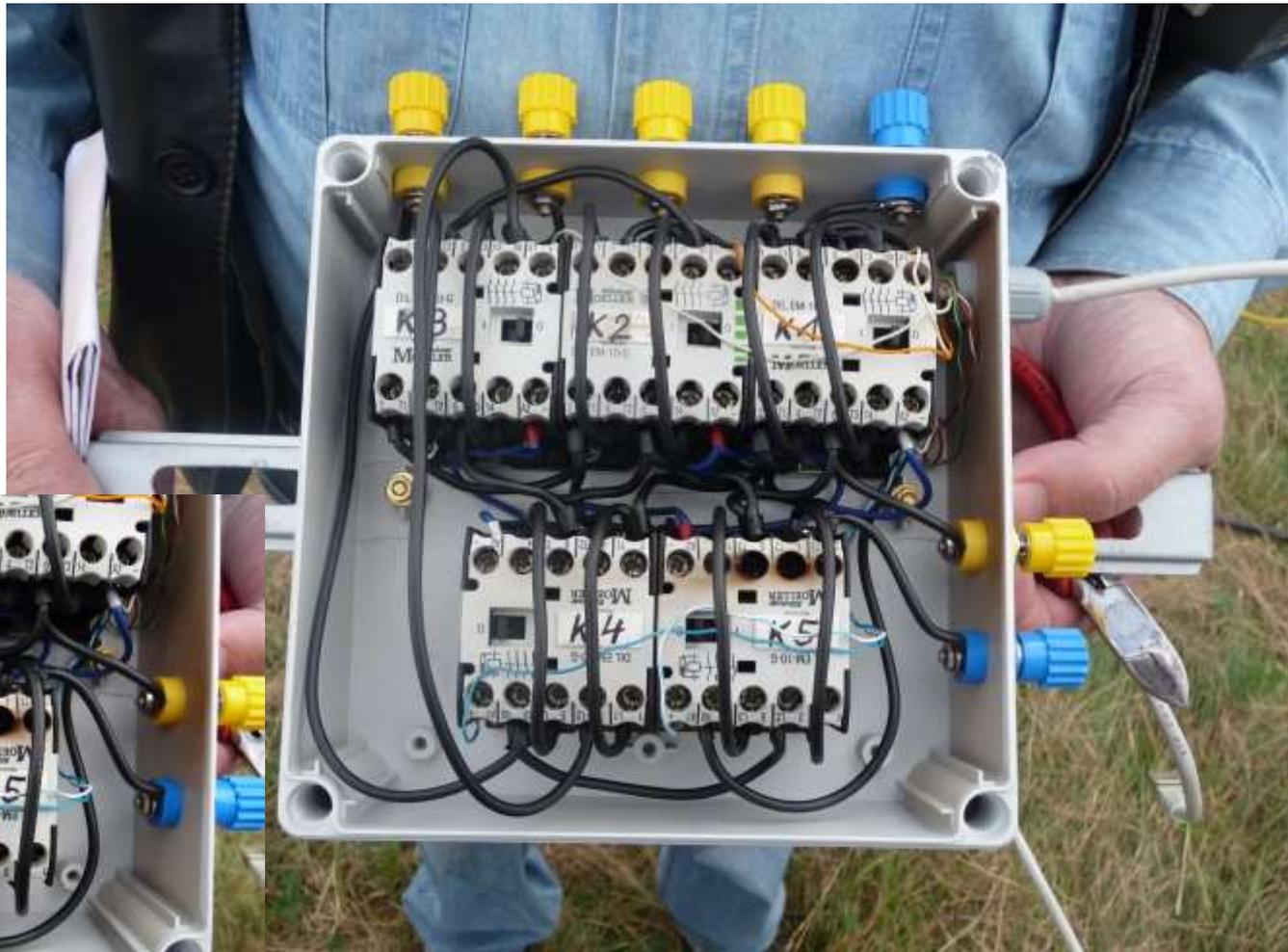
RIGS:
 ICOM IC7700
 ELECFRAFT K3
 KENWOOD TS2000
 KENWOOD TS480SX
 YAesu FT897D
 YAesu FT857D

PSL QSL DIRECT VIA BUREAU TNX QSL

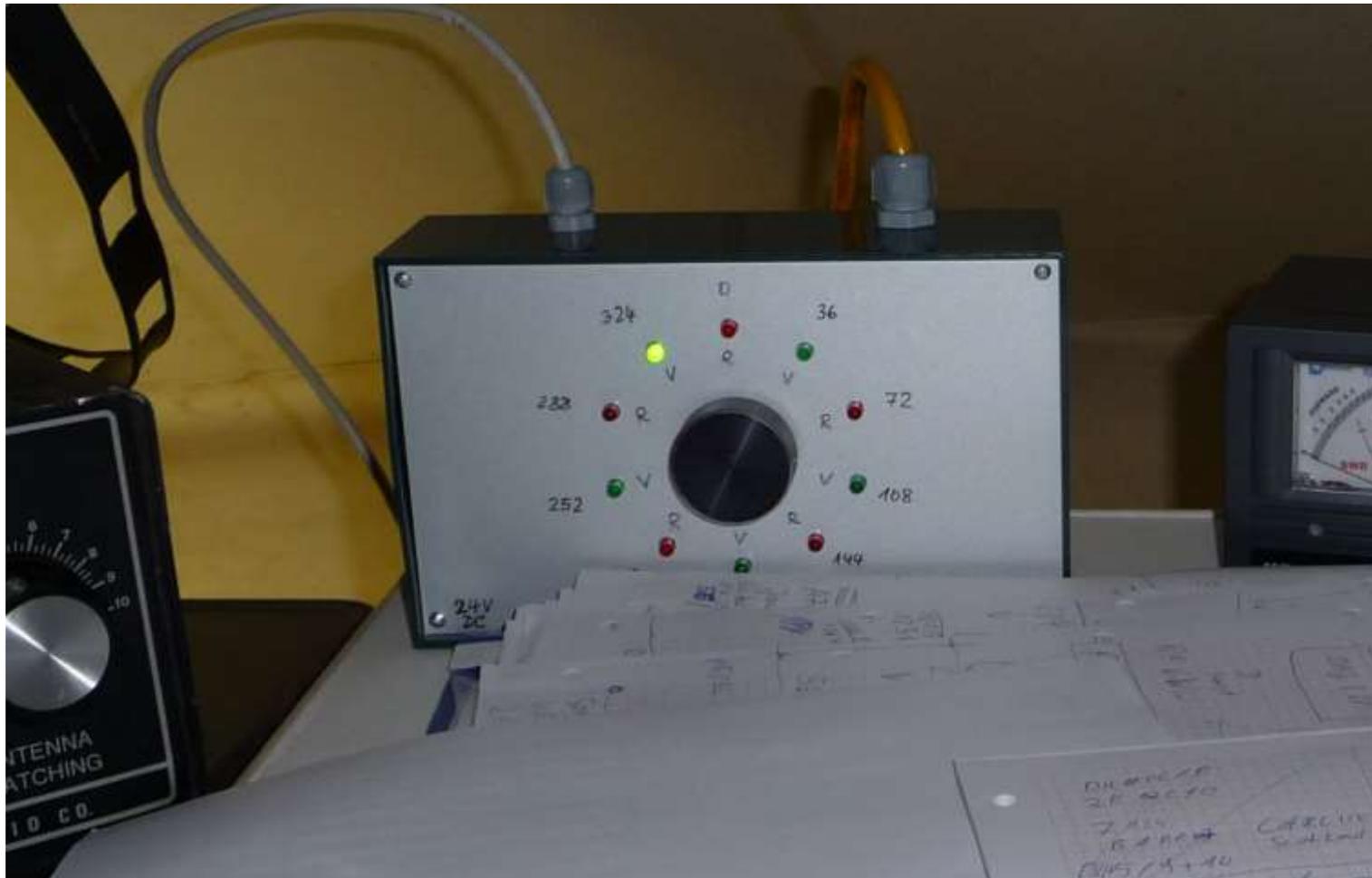


Der 5-fach V-Stern

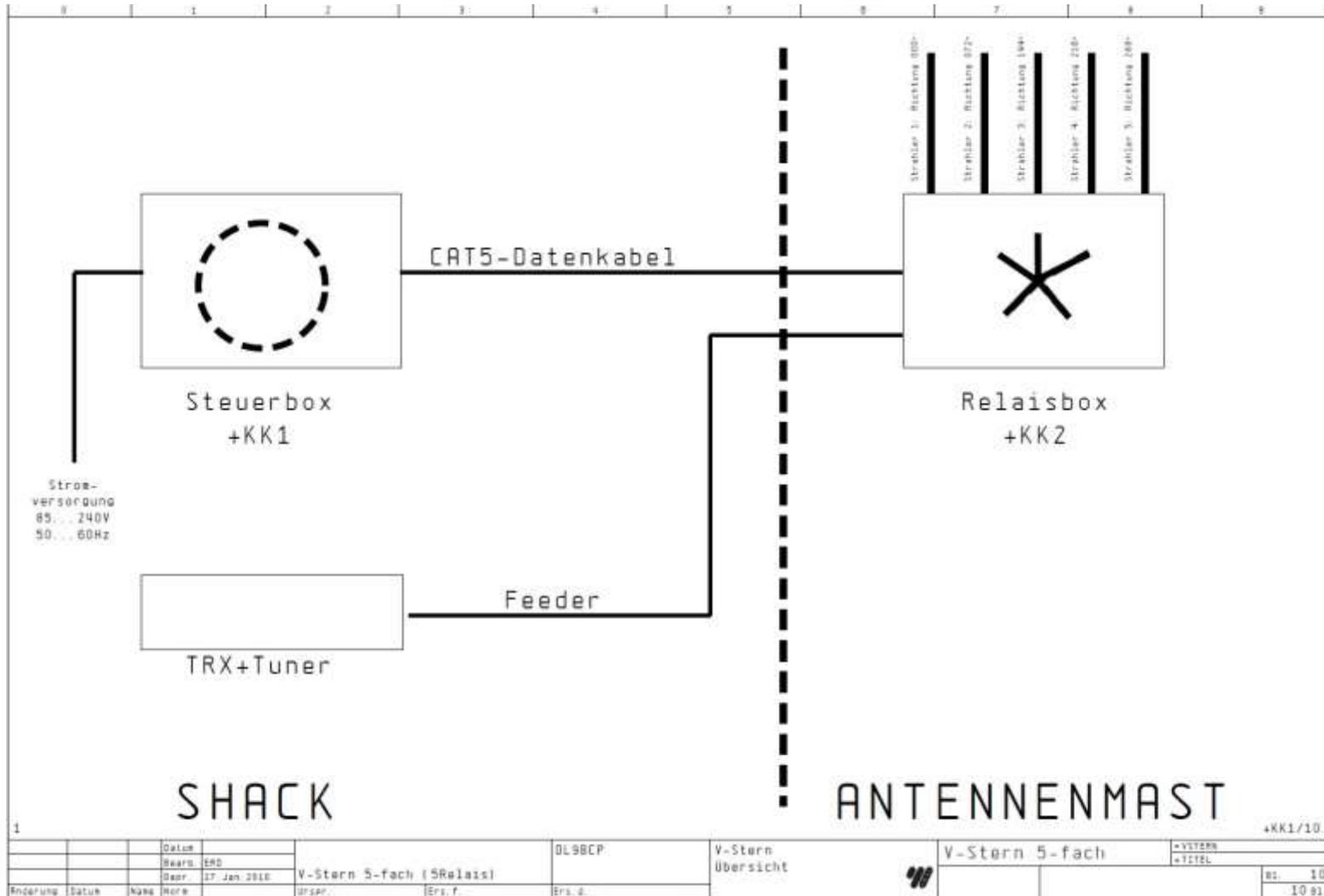
Abstimmversuch mit mehr HF-Leistung



Der 5-fach V-Stern

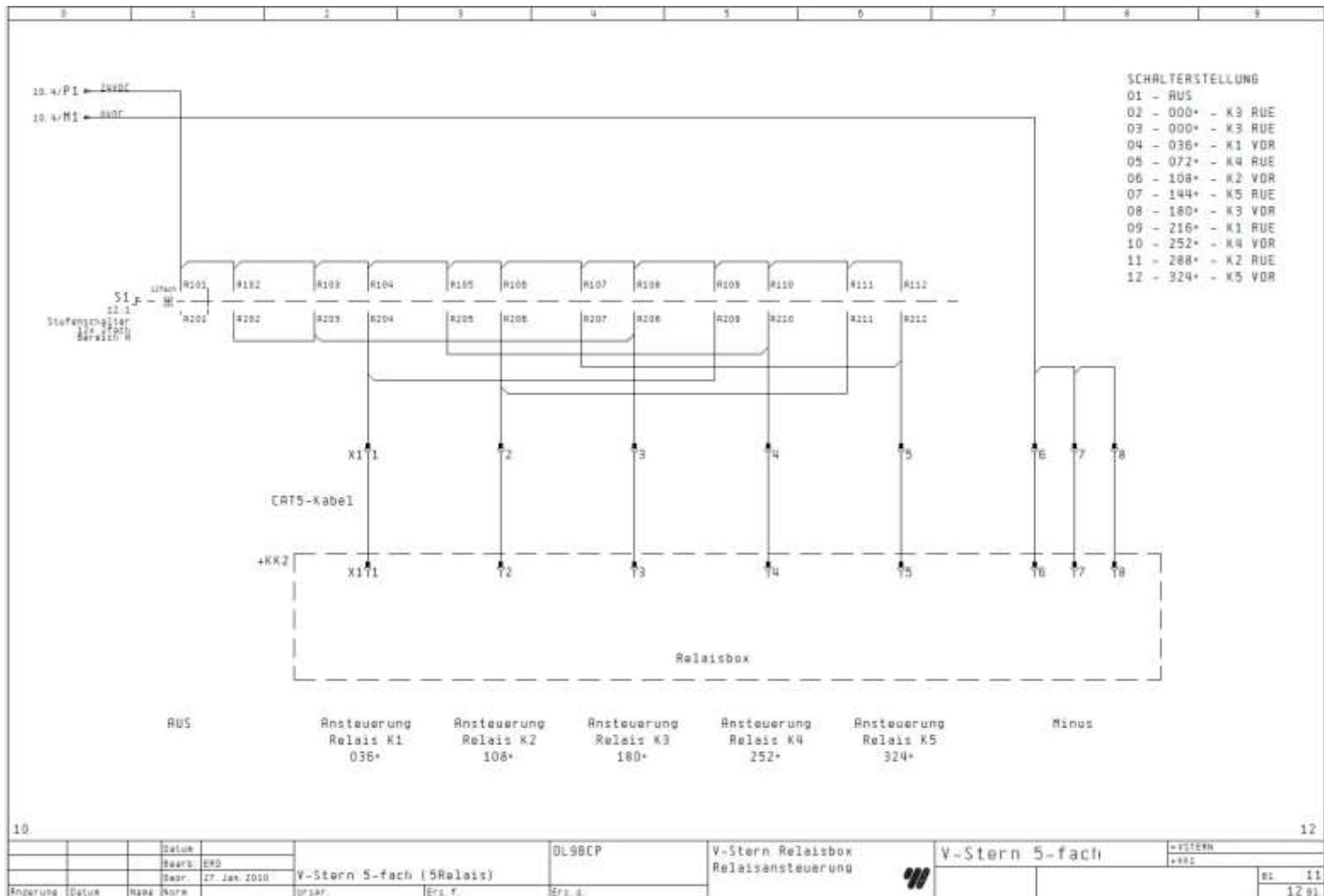


Der 5-fach V-Stern



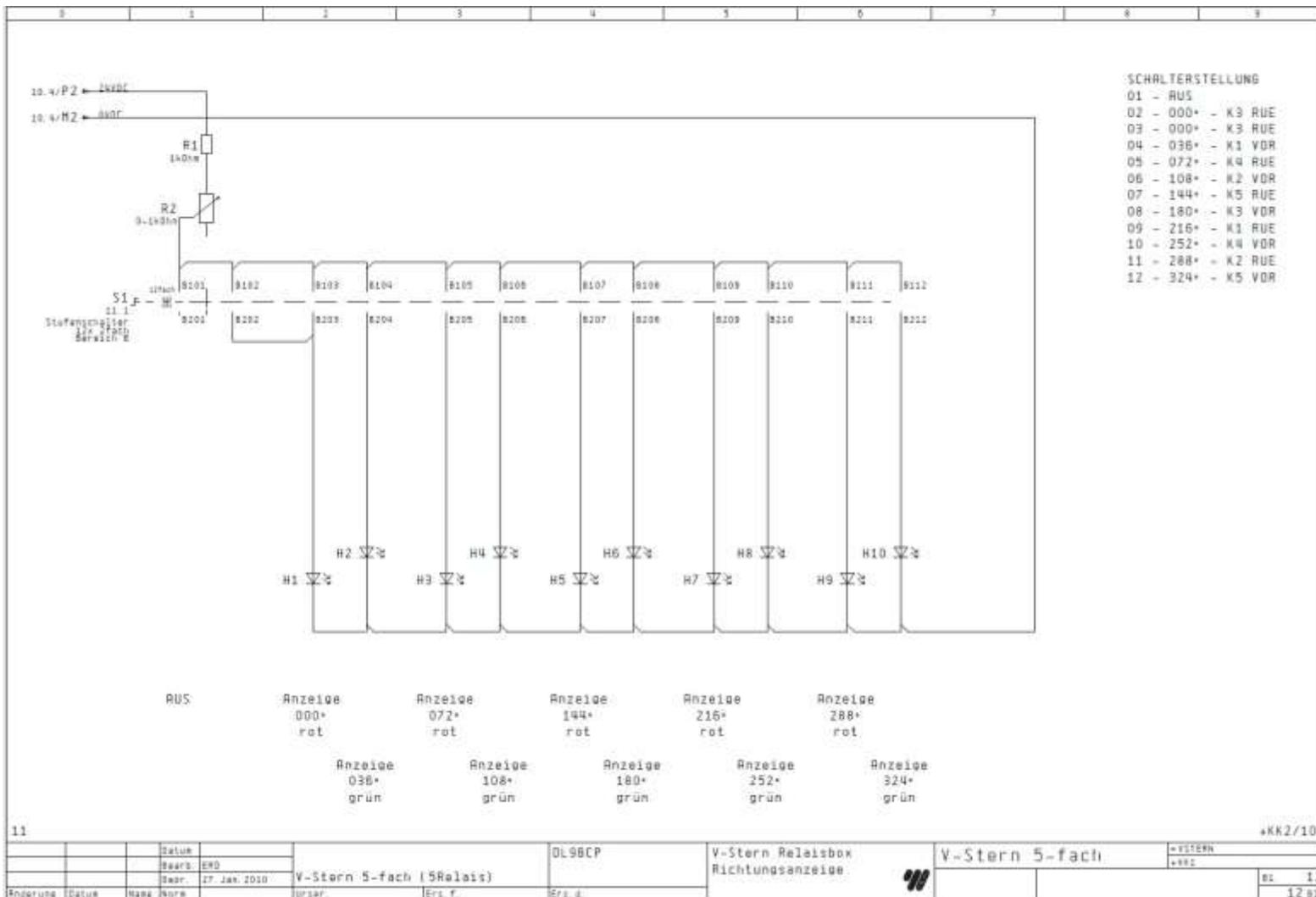
Ortsverband Delmenhorst I-18

Der 5-fach V-Stern



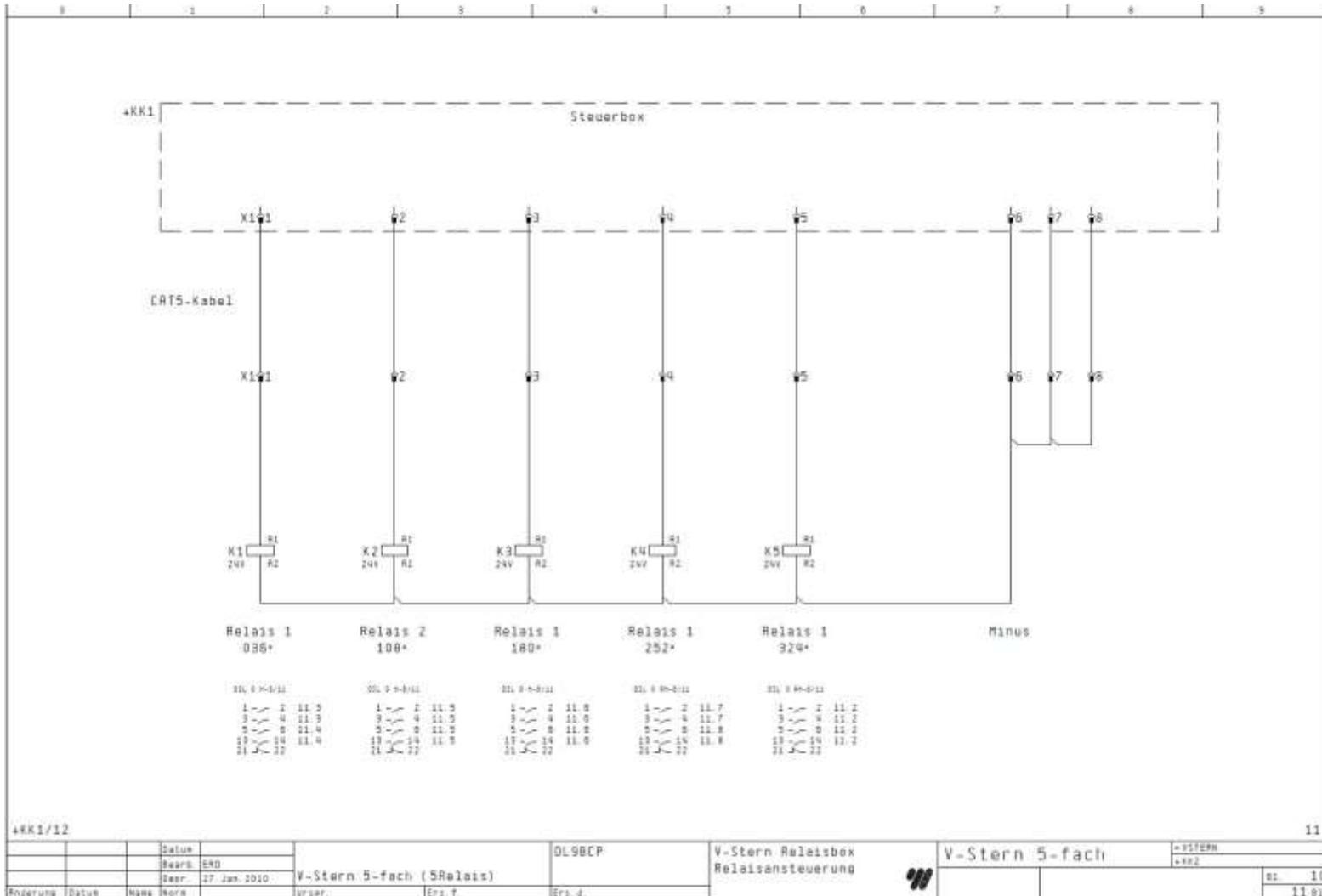
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Der 5-fach V-Stern



Ortsverband Delmenhorst I-18

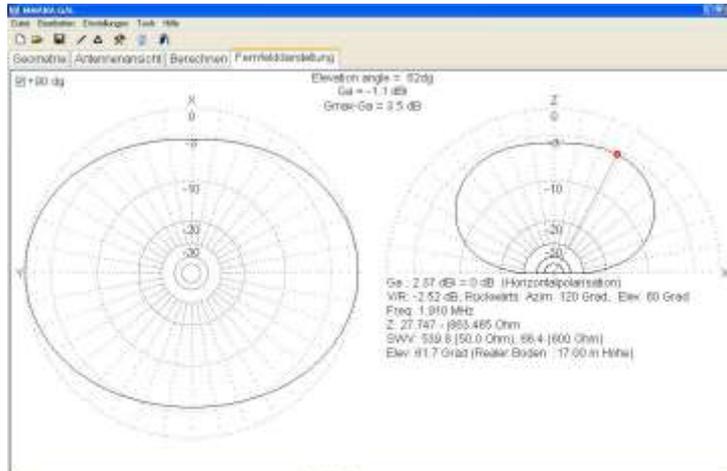
Der 5-fach V-Stern



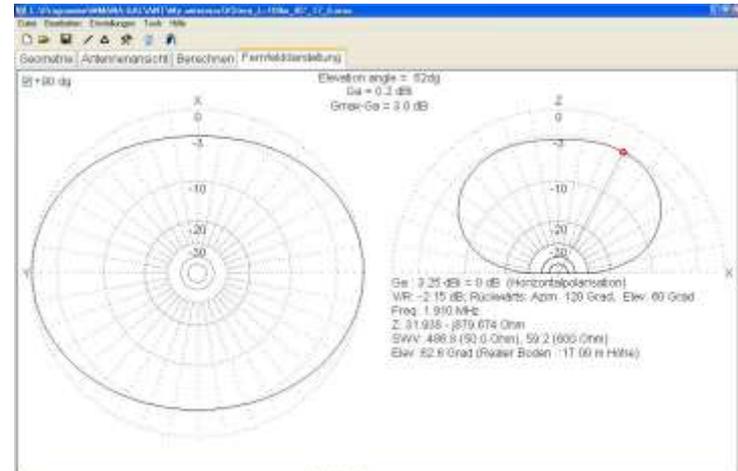
V-Antenne mit variablem Winkel (1,91MHz)

Schenkellänge 100m; Höhe: Mitte 17m, Endpunkte 6m

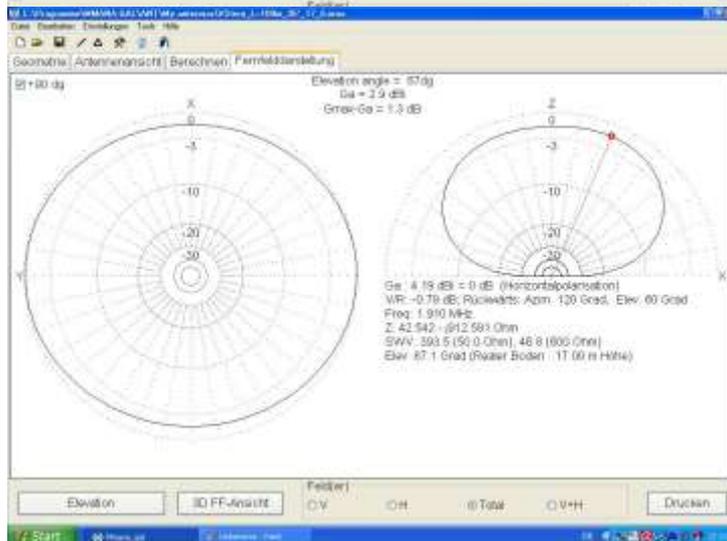
36°
1,1dBi
62°



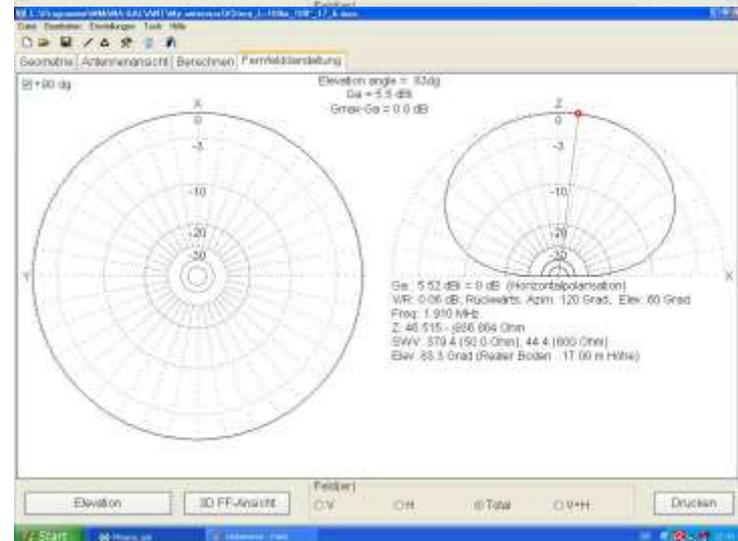
45°
0,2dBi
62°



72°
2,9dBi
67°



108°
5,5dBi
83°

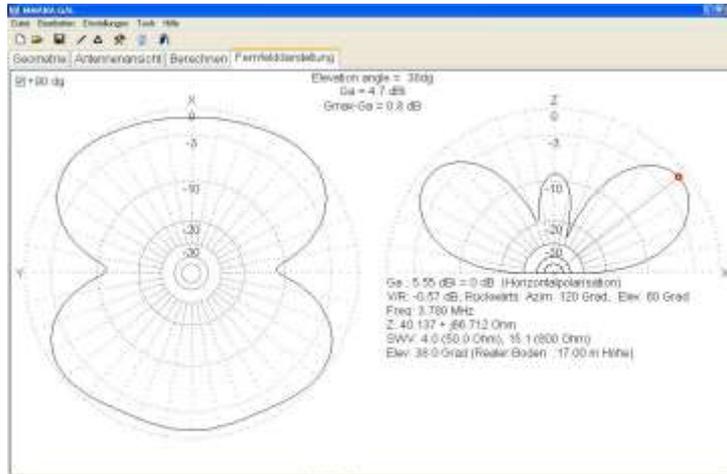


Ortsverband Delmenhorst I-18

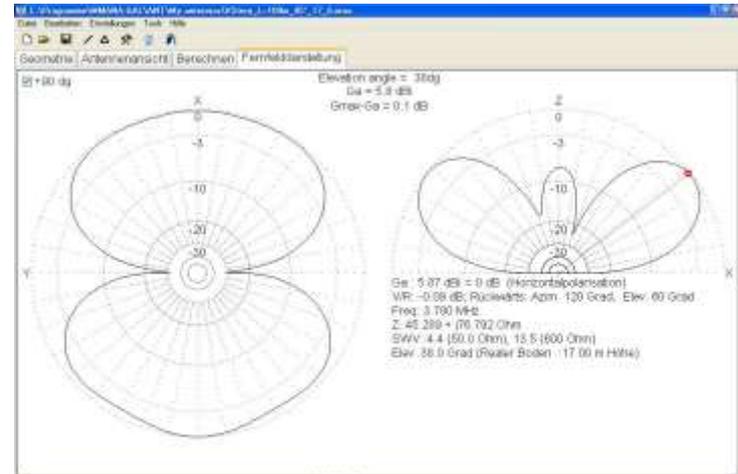
V-Antenne mit variablem Winkel (3,78MHz)

Schenkellänge 100m; Höhe: Mitte 17m, Endpunkte 6m

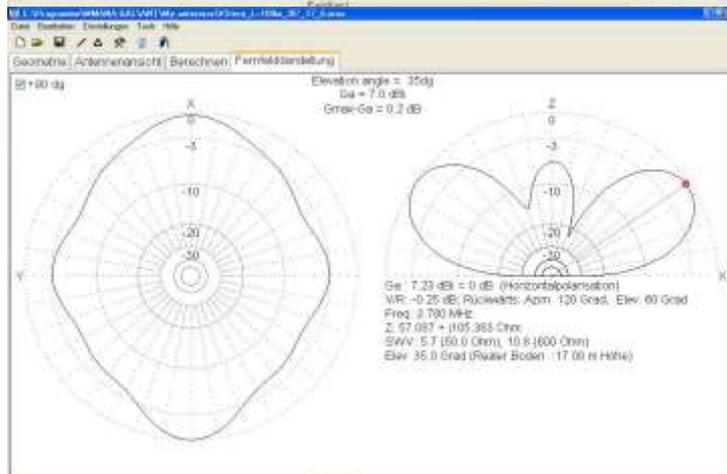
36°
4,7dBi
38°



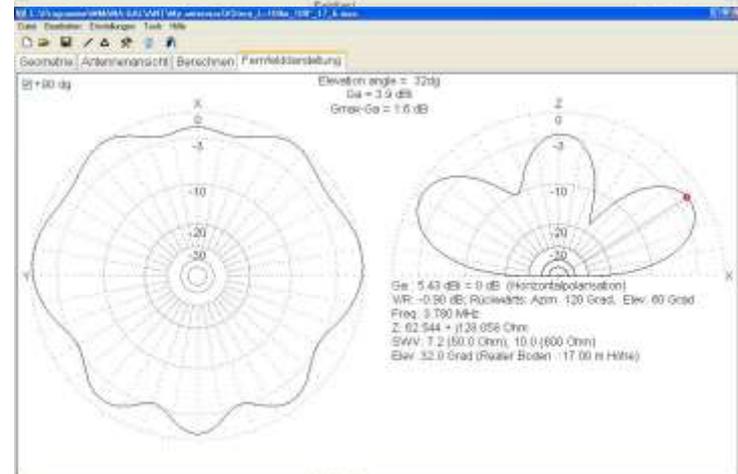
45°
5,8dBi
38°



72°
7,0dBi
35°



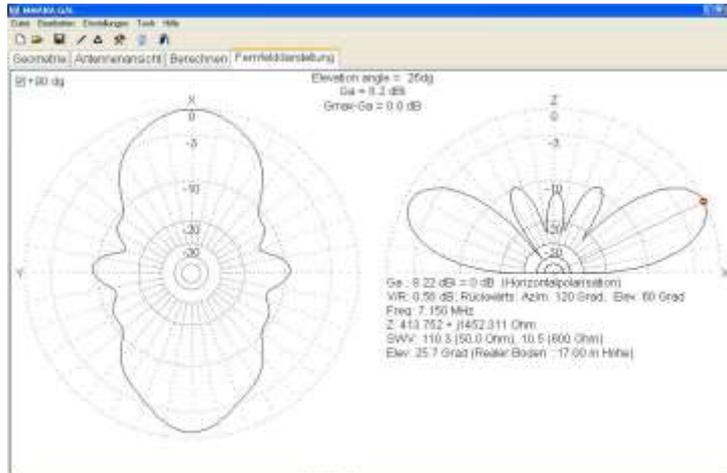
108°
3,9dBi
32°



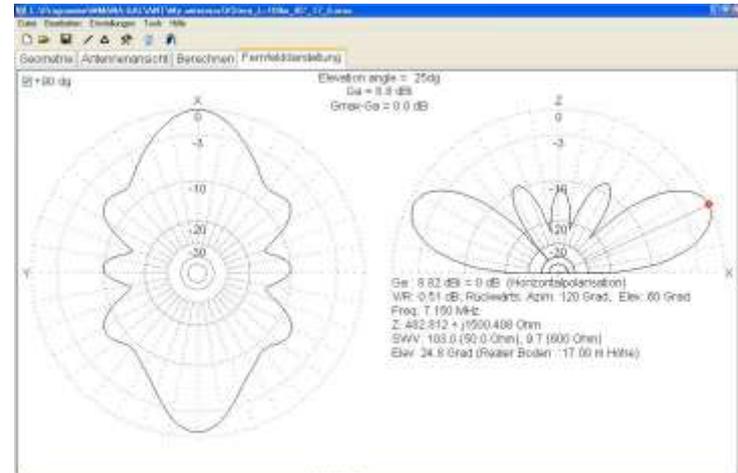
V-Antenne mit variablem Winkel (7,15MHz)

Schenkellänge 100m; Höhe: Mitte 17m, Endpunkte 6m

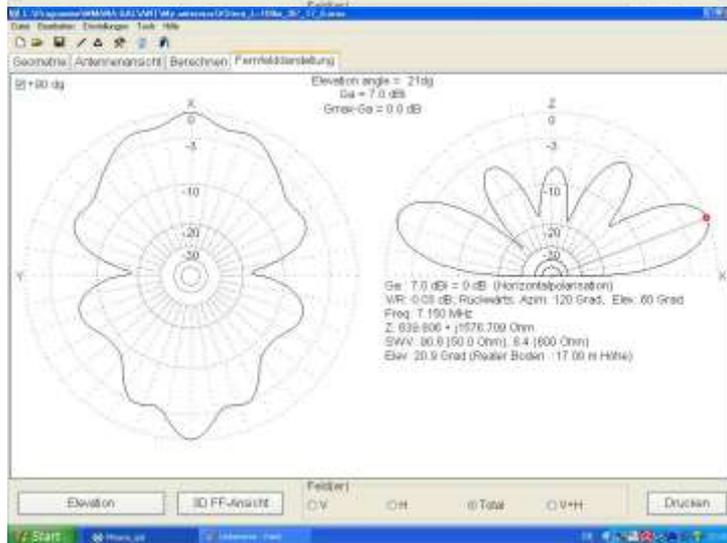
36°
8,2dBi
26°



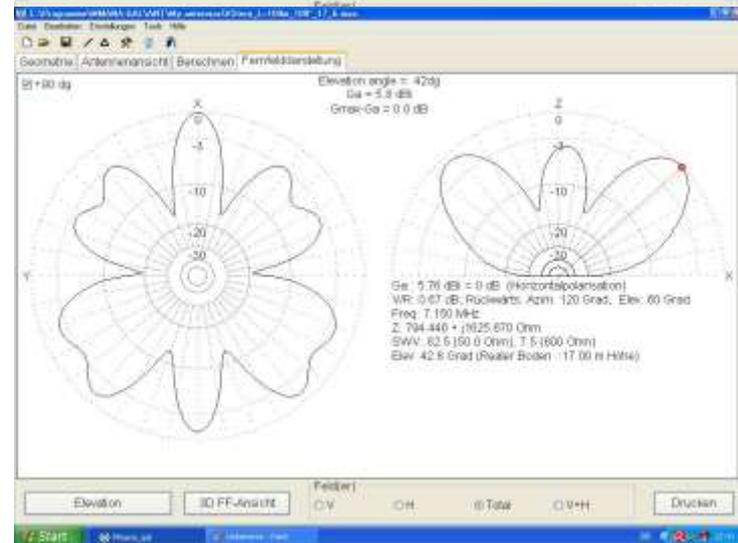
45°
8,8dBi
25°



72°
7,0dBi
21°



108°
5,8dBi
42°

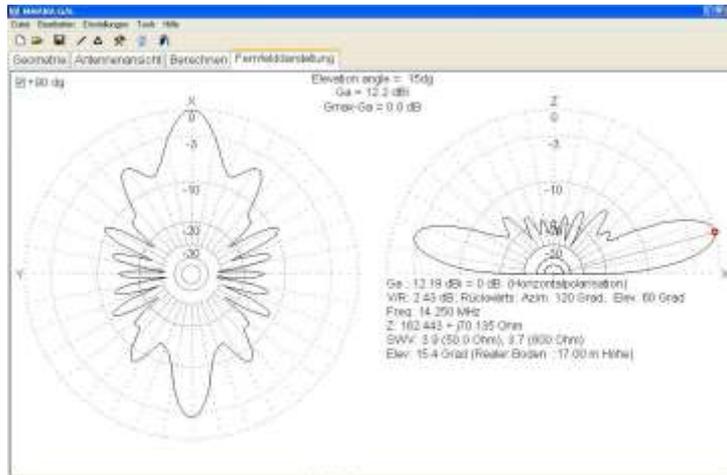


Ortsverband Delmenhorst I-18

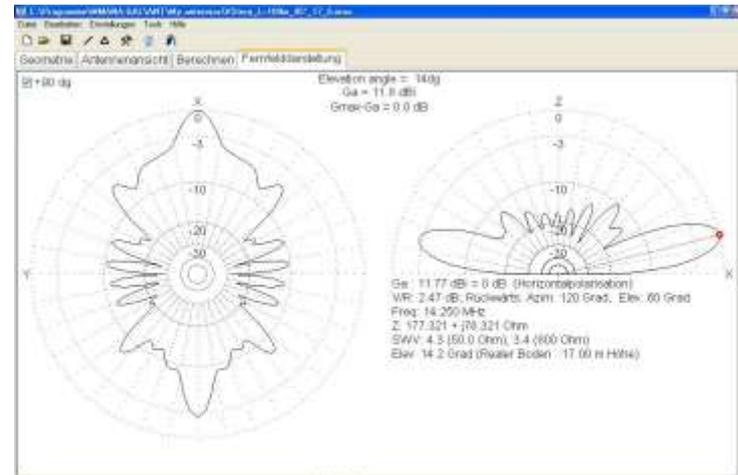
V-Antenne mit variablem Winkel (14,25MHz)

Schenkellänge 100m; Höhe: Mitte 17m, Endpunkte 6m

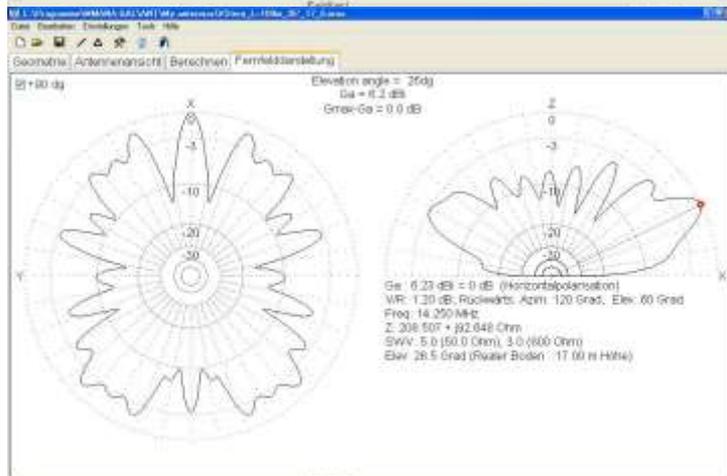
36°
12,2dBi
15°



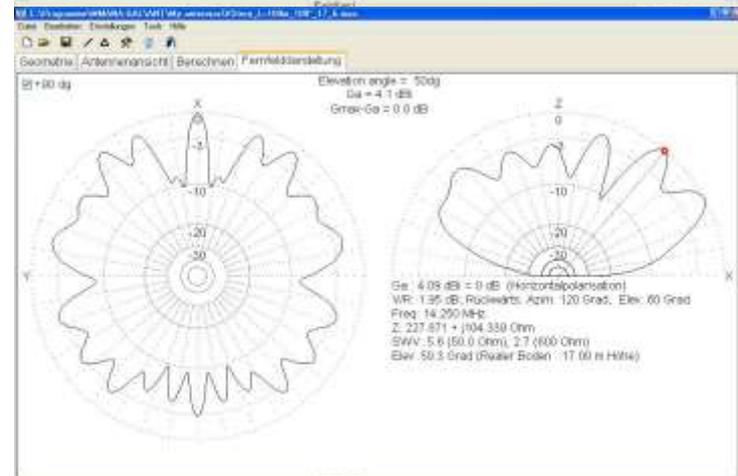
45°
11,8dBi
14°



72°
6,2dBi
26°



108°
4,1dBi
50°

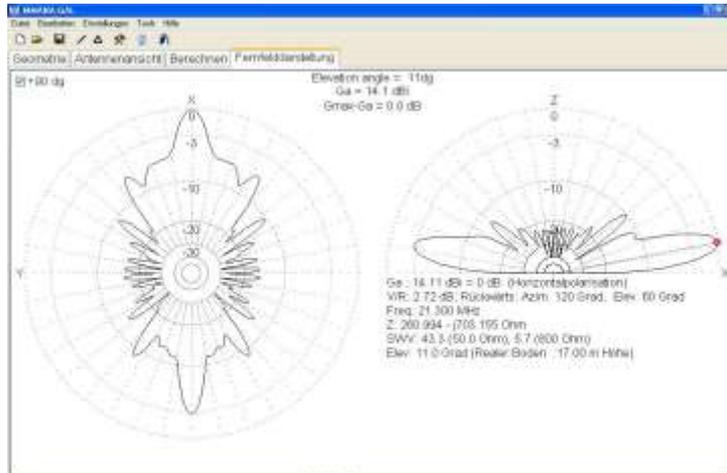


Ortsverband Delmenhorst I-18

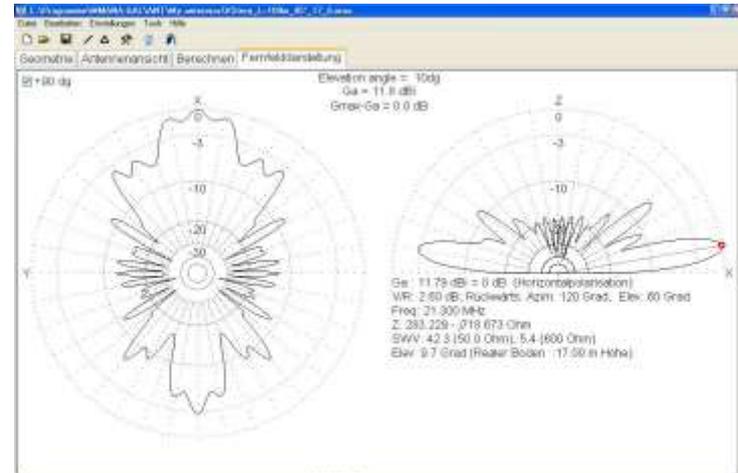
V-Antenne mit variablem Winkel (21,3MHz)

Schenkellänge 100m; Höhe: Mitte 17m, Endpunkte 6m

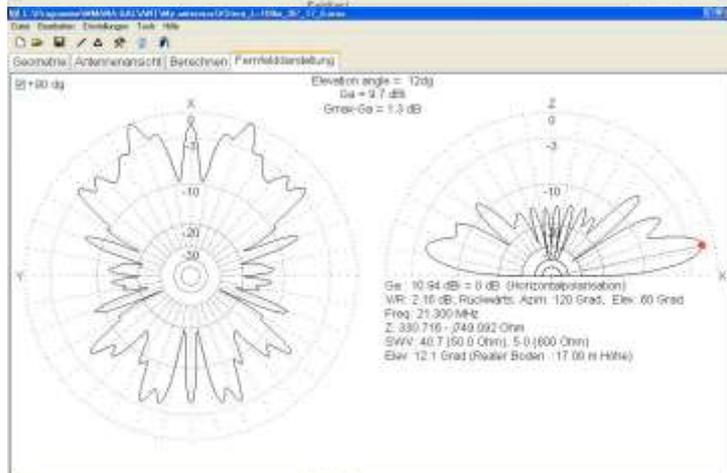
36°
 14,1dBi
 11°



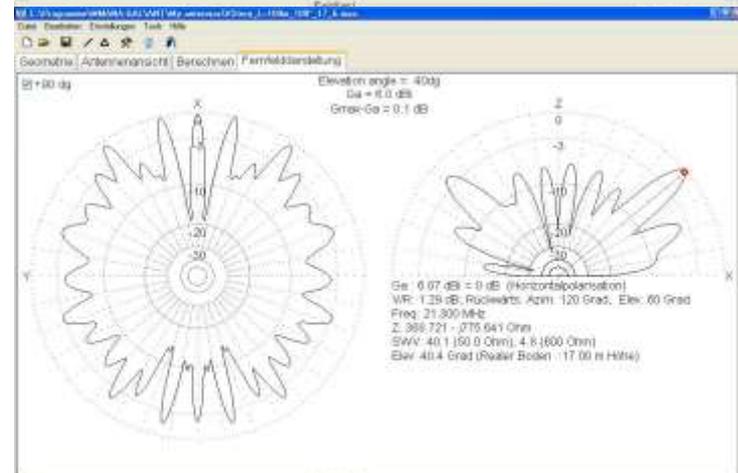
45°
 11,8dBi
 10°



72°
 9,7dBi
 12°



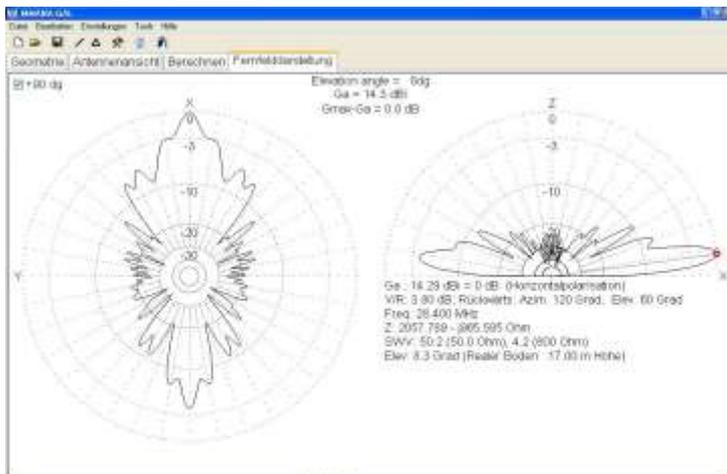
108°
 6,0dBi
 40°



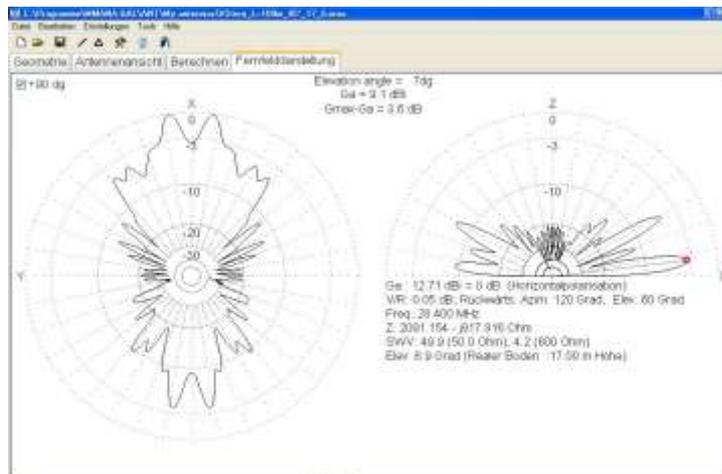
V-Antenne mit variablem Winkel (28,4MHz)

Schenkellänge 100m; Höhe: Mitte 17m, Endpunkte 6m

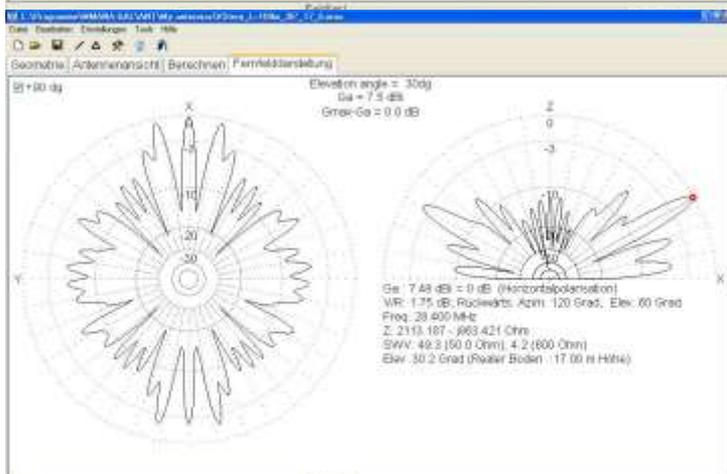
36°
14,3dBi
8°



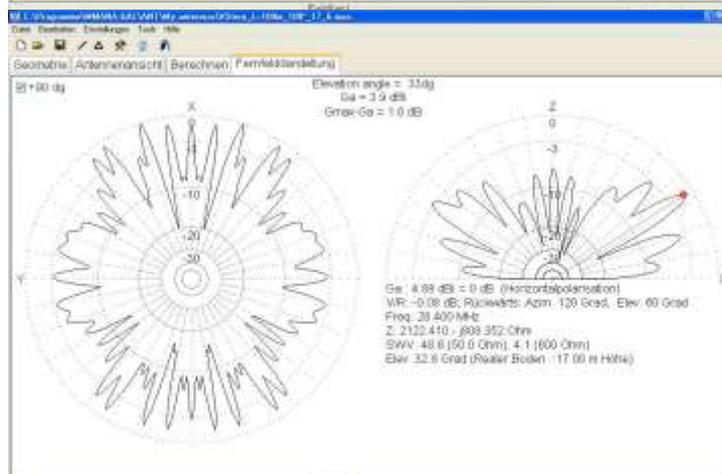
45°
9,1dBi
7°



72°
7,5dBi
30°



108°
3,9dBi
33°



Der 10-fach V-Stern



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Ortsverband Delmenhorst I-18



Antennen-Vortrag Noch Fragen???

10. I18-Antennentestwochenende

