

Double-Ridged Waveguide Horn Antenna

R&S[®] HF907

0.8 GHz to 18 GHz

Technical Information

Subject to change [2008-03, 8GEP-fi/kl]



ROHDE & SCHWARZ

Double-Ridged Waveguide Horn Antenna R&S® HF907

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1. Use

The Double-Ridged Waveguide Horn Antenna R&S® HF907 with linear polarization is a compact broadband transmitting and receiving antenna for the frequency range of 0.8 GHz to 18 GHz.

Due to specific calibration, EMI measurements are the antenna's main field of application.

High gain and a low VSWR allow the generation of high field-strength levels without any significant return loss as well as the measurement of weak signals.

The antenna's main features at a glance are:

- Wide frequency range
- High and flat gain
- Single main lobe radiation pattern over whole frequency range (optimized even distribution of electromagnetic energy on target surfaces for EMS applications and effective evaluation of emissions for EMI measurements)
- Compact dimensions
- High efficiency
- Input power up to 300 W
- Ideal for use in EMC laboratories
- Individual calibration in line with ANSI C63.5 and SAE ARP 958

2. Description

Following the principle of the exponential double-ridged waveguide, the R&S® HF907 has a wide operating frequency range of 0.8 GHz to 18 GHz while retaining compact size. Gain increases with the frequency as well. The ridge profile is optimized for a smooth frequency curve with respect to both gain and patterns.

- The antenna requires little space and is easy to handle.
- The use of an N connector allows easy adaptation to existing systems as well as high input power.
- The antenna is made of aluminum to keep its weight low.
- Polarization can be set mechanically in 45° steps.

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3. Specifications

Frequency range	0.8 GHz to 18 GHz
Polarization	linear
Polarization decoupling	> 25 dB (> 30 dB typ.)
RF connector	N female
Nominal impedance	50 Ω
SWR	≤ 3.0 (frequencies < 1.5 GHz); < 2.0 (frequencies ≥ 1.5 GHz); (see Fig. 1)
Gain	5 dBi to 14 dBi (referred to antenna aperture) (see Fig. 2)
Antenna factor	for typical values see Fig. 3
Radiation patterns	
Azimuth	directional
HPBW	90° to 30° (see Fig. 5)
Elevation	directional
HPBW	100° to 40° (see Fig. 5)
Maximal input power (CW, at +40°C ambient temperature)	300 W between 0.8 GHz and 4.5 GHz 200 W at 12 GHz 150 Watt at 18 GHz
Dimensions	
Height	approx. 226 mm
Width	approx. 305 mm
Length	approx. 280 mm
Weight	approx. 1.9 kg
Operating temperature range	-10°C to +50°C; DIN EN 60068-2-1 and 60068-2-2
Storage temperature range	-40°C to +70°C; DIN EN 60068-2-1 and 60068-2-2
Humidity	+40°C at 80% relative humidity; DIN EN 60068-2-3
Vibration resistance	sine, 5 Hz to 55 Hz, ± 0.15 mm, constant; 55 Hz to 150 Hz, 0.5 g constant 12 minutes per axes; DIN EN 60068-2-6
Shock resistance	40 g shock spectrum; MIL-STD 810E Method 516.4
MTBF	>100.000 h

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4. Equipment Supplied

- 1 Antenna
- 1 Adapter for Mounting on Tripods, e.g. R&S®HZ-1
- 1 Manual
- 1 Calibration report
- 1 CD-ROM

5. Ordering Information

Double-Ridged Horn Antenna R&S®HF9074070.7000.02

6. Recommended Extras

Wooden Tripod R&S®HZ-10837.2310.02

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7. Figures

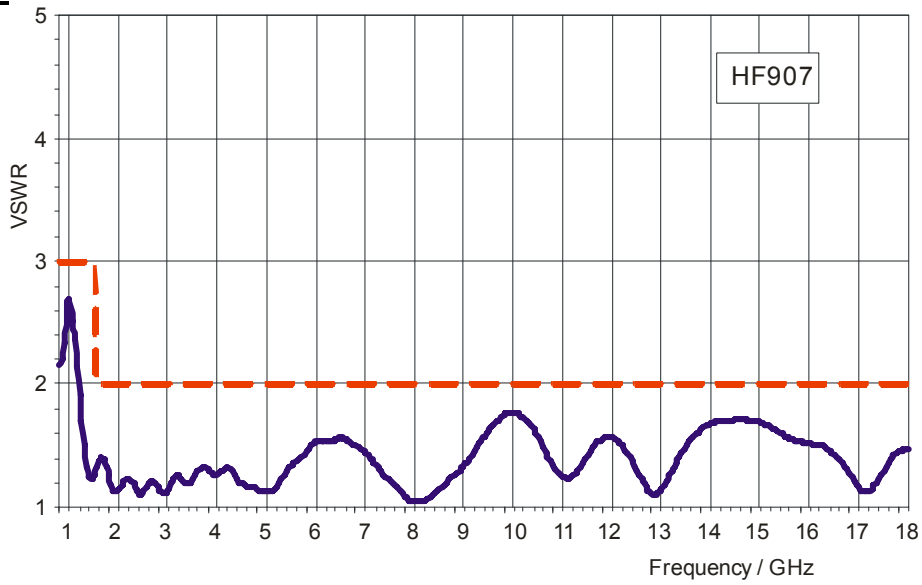


Fig. 1 VSWR (typ.)

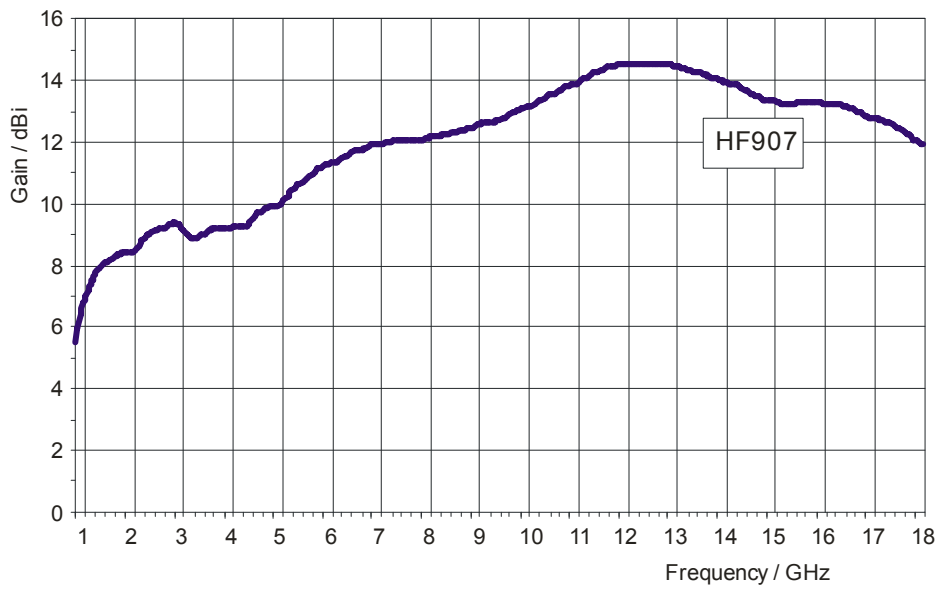


Fig. 2 Gain (typ.)

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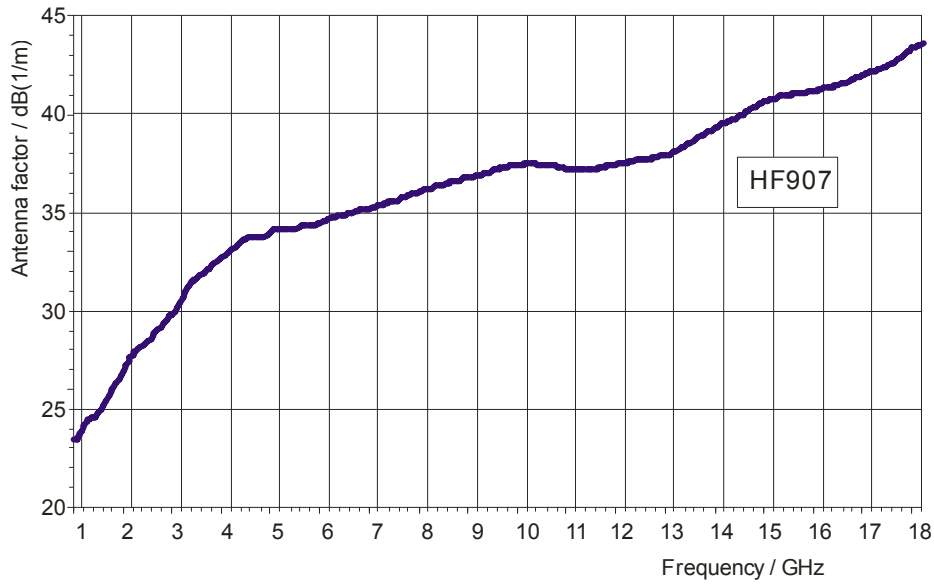


Fig. 3 Antenna factor (typ.)

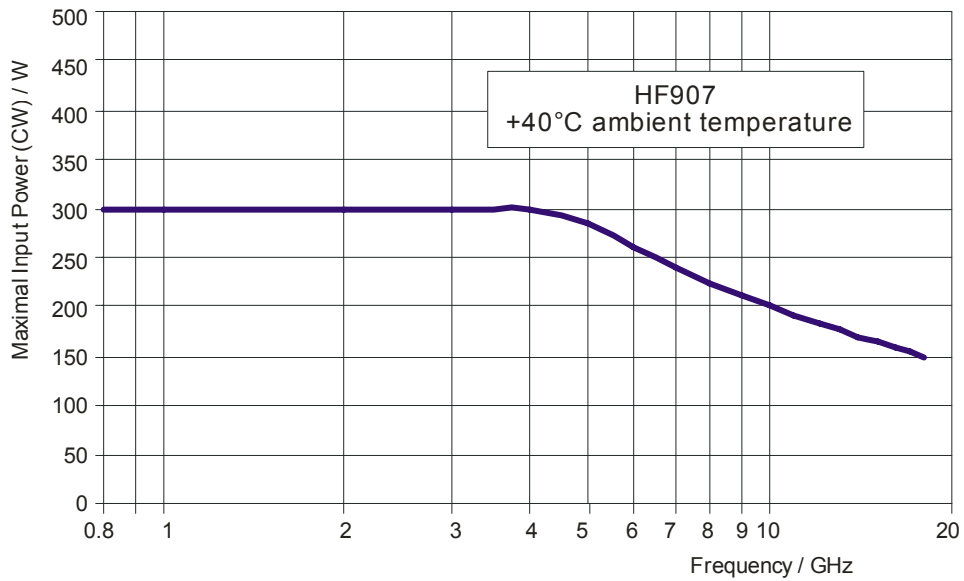


Fig. 4 Maximum permissible input power

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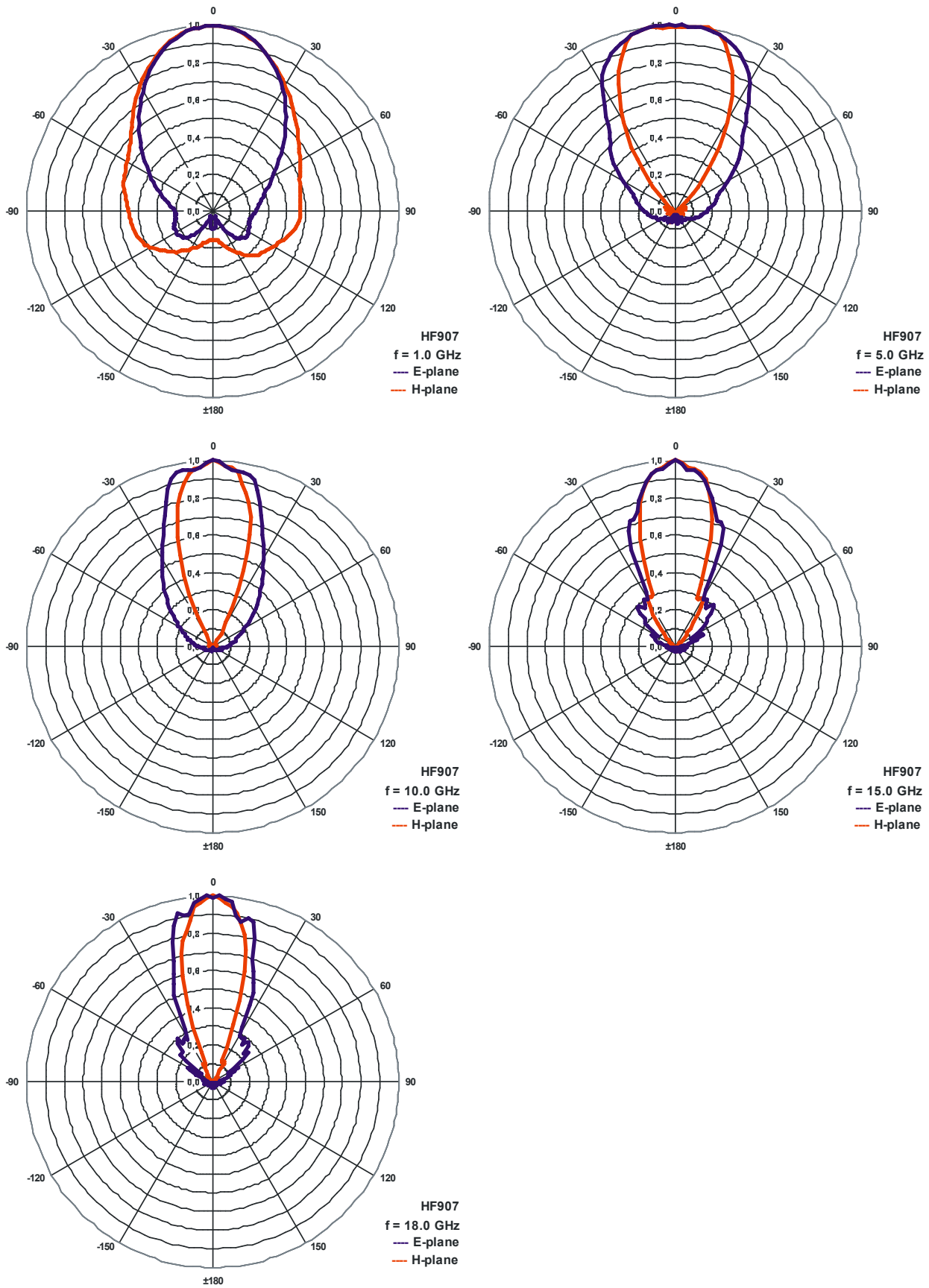


Fig. 5 Radiation patterns in E-plane and H-plane

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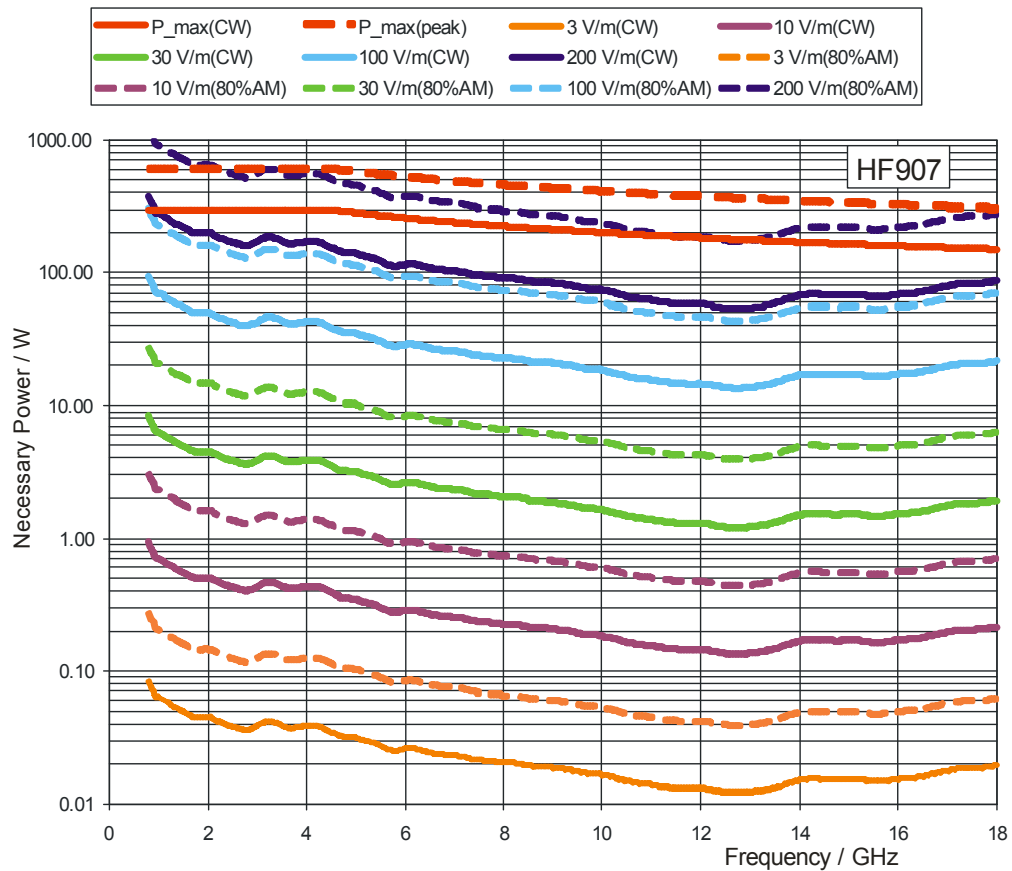


Fig. 6 Required input power (typ.) for certain field strengths at 1 m distance from the antenna

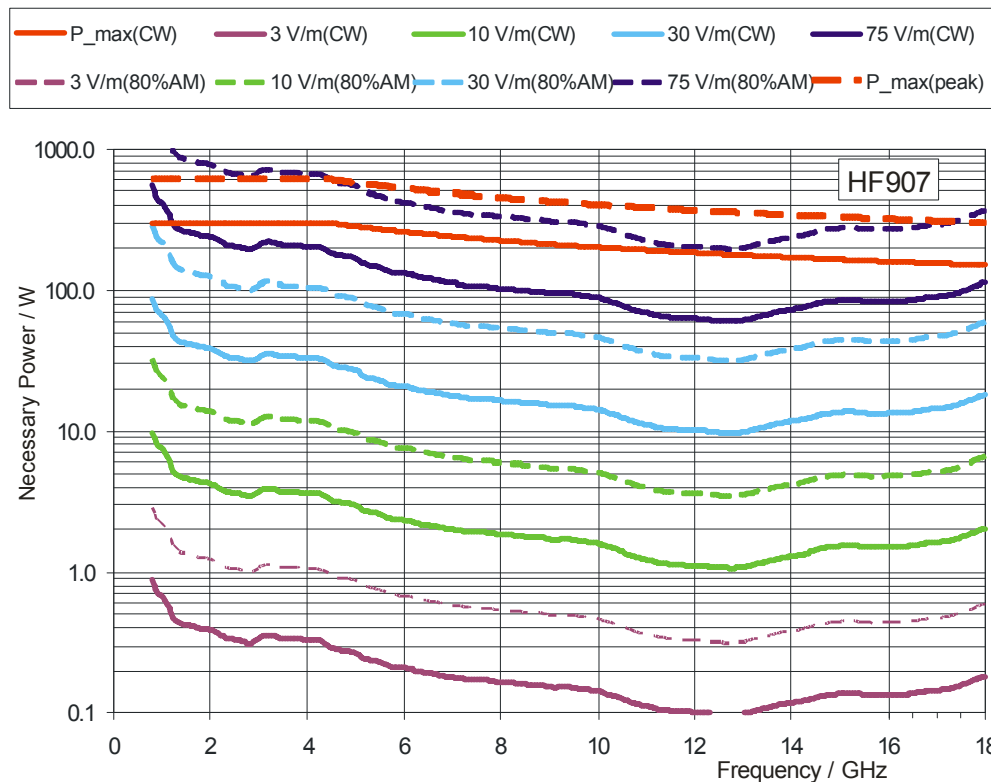
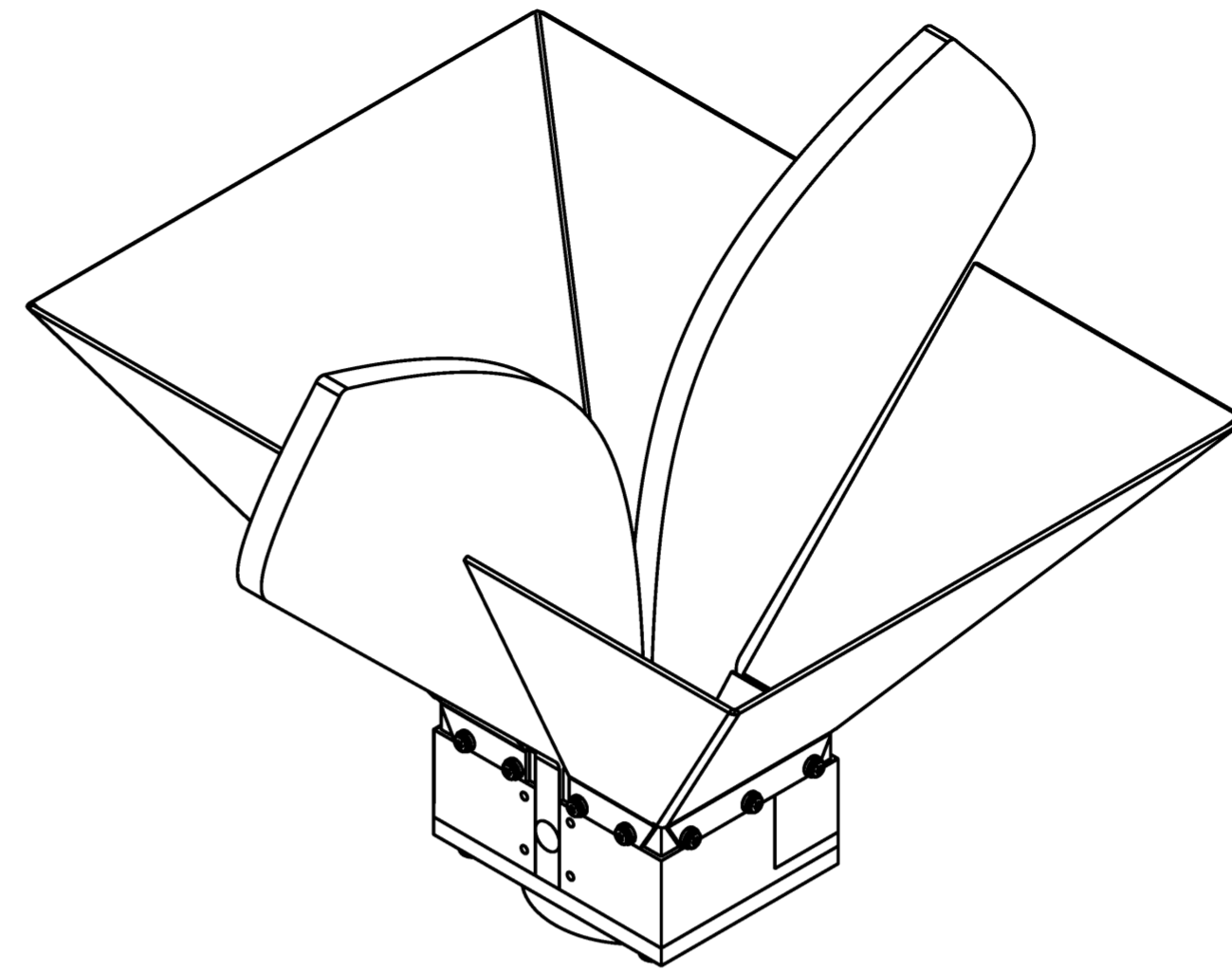
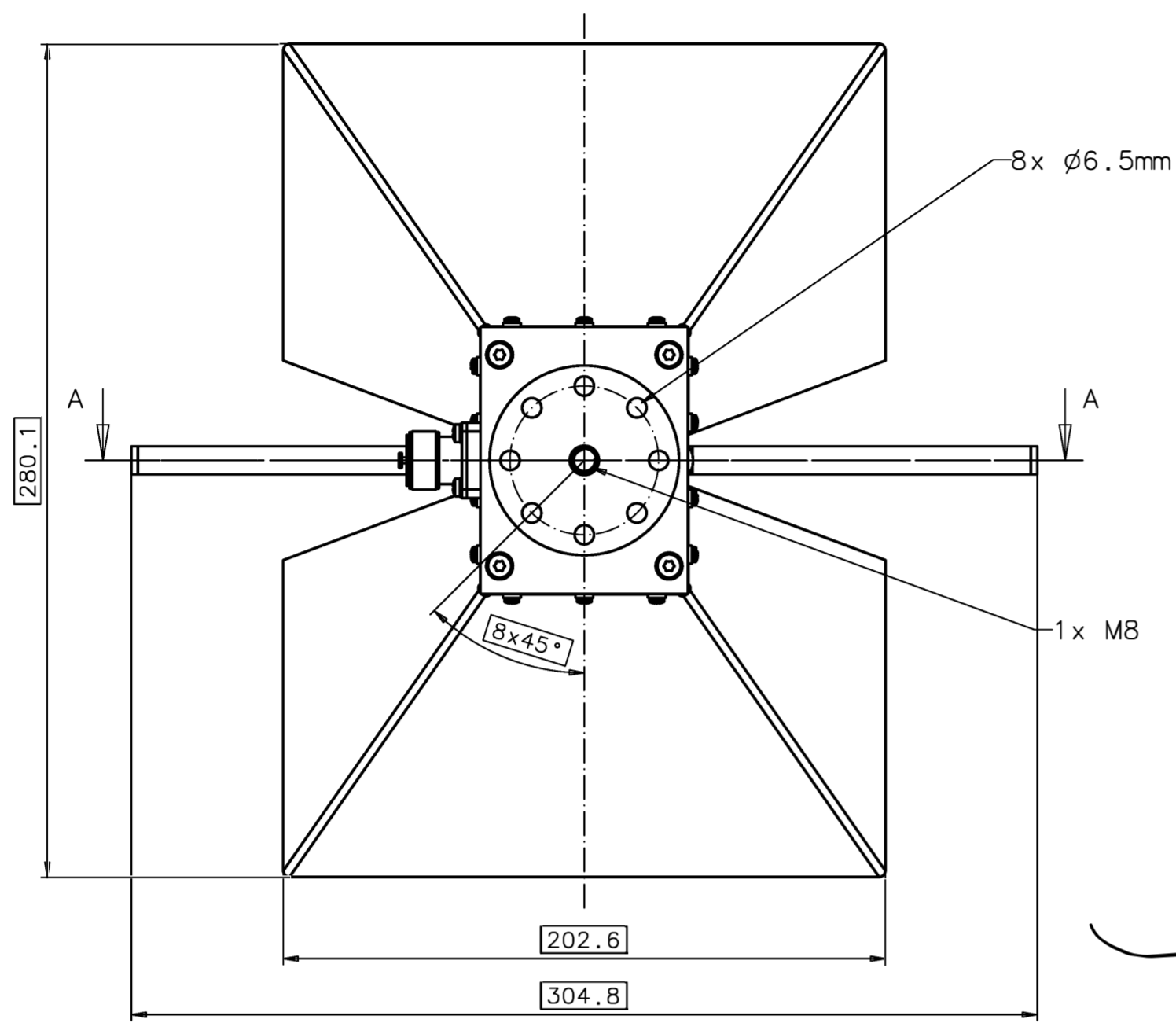
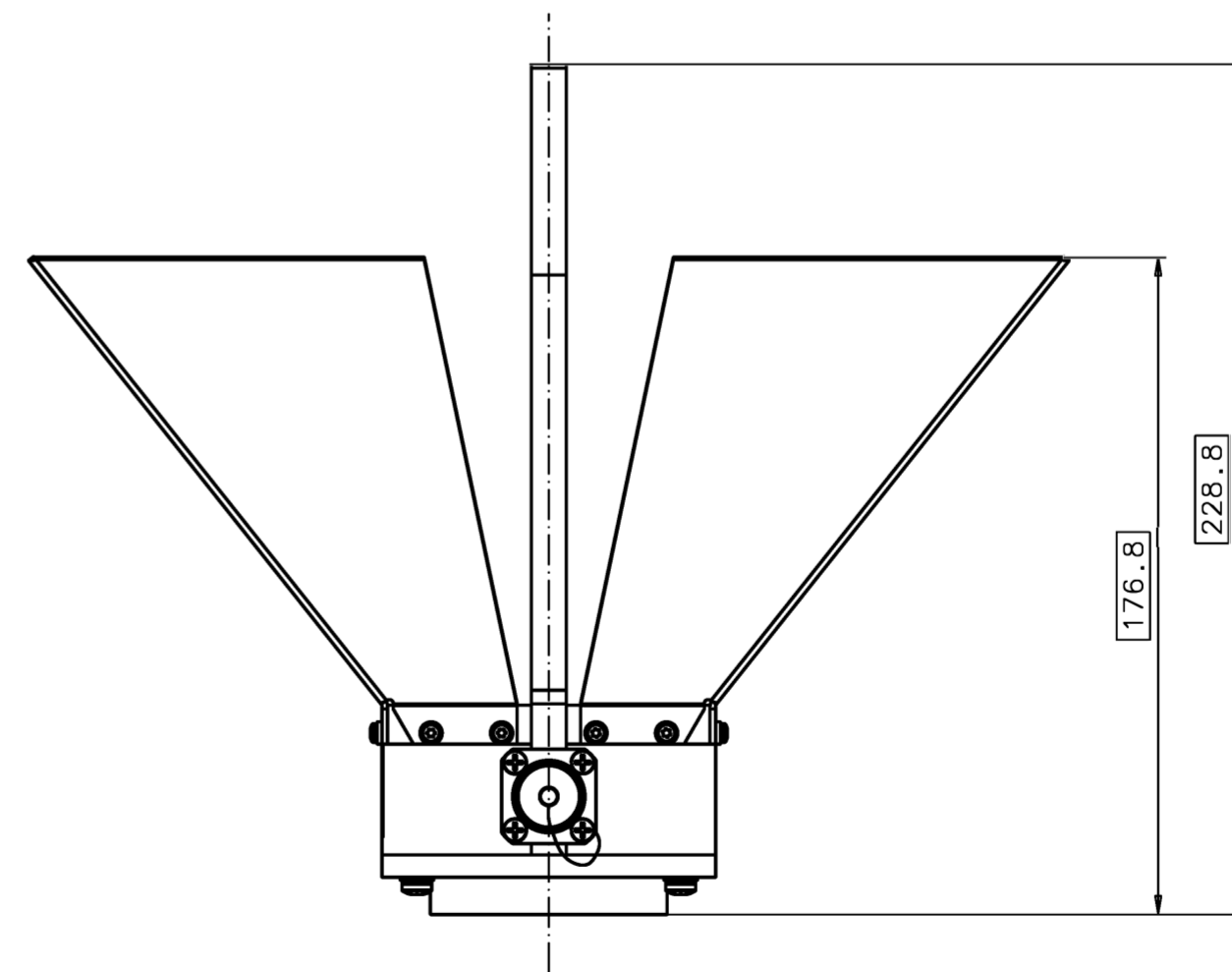
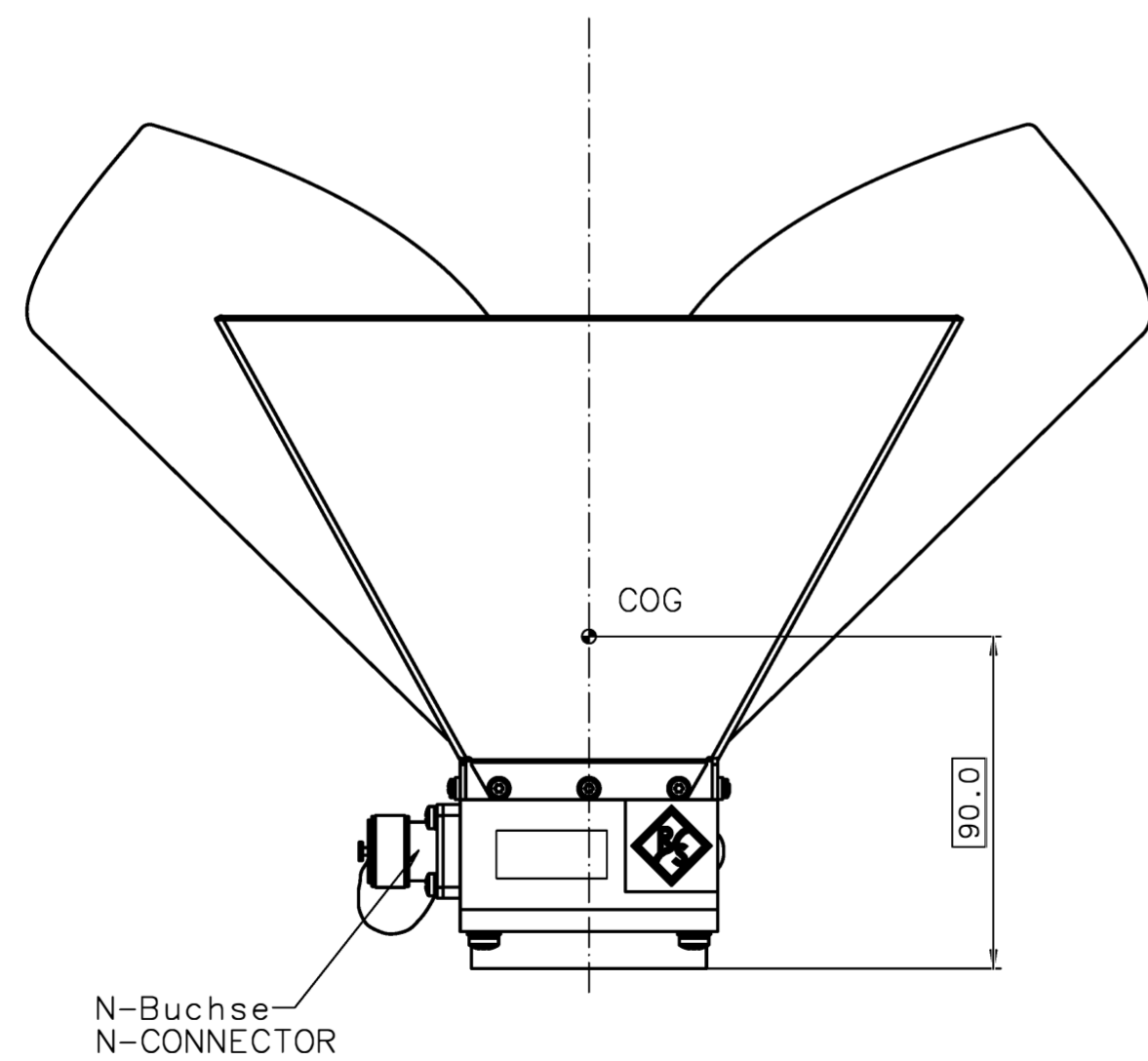
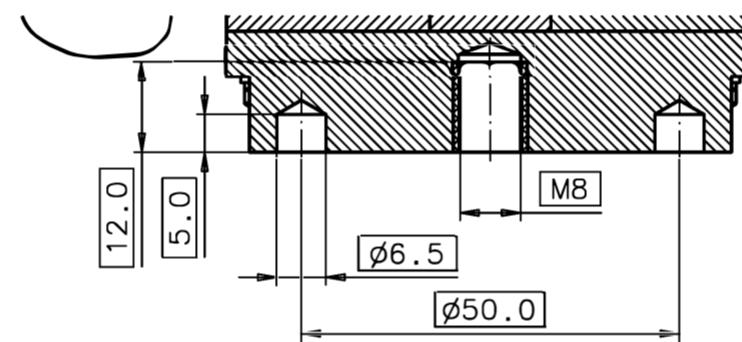


Fig. 7 Required input power (typ.) for certain field strengths at 3 m distance from the antenna



Schnitt A-A
 M 1:1



Variantenerklärung / VERSIONS DECLARATION
 VAR 02 unlackiert - UNPAINTED

COG = CENTER OF GRAVITY
 Gesamtgewicht / TOTAL MASS = 1.8kg

Maßstab / Scale	1:2	Toleranz / Tol.	ISO2768-mK	Werkstoff / Material	
Benennung / Designation	ROHDE&SCHWARZ HF907 DOPPELSTEG HORN ANTENNE HF907 DOUBLE RIDGED HORN ANTENNA				Sprache / Lang. / Ael. / C.F. de / 02.00 / 1
Datum / Date	2007-07-18	Abteilung / Dept.	8GEK	Name / Name	RB
Zeichn.Nr. / Drawing No.				4070.7000.01	

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