VEGAPULS 6X
FCC: O6QPS6XW
IC: 3892A-PS6XW

VEGAPULS 6X with Horn antenna for high temperatures

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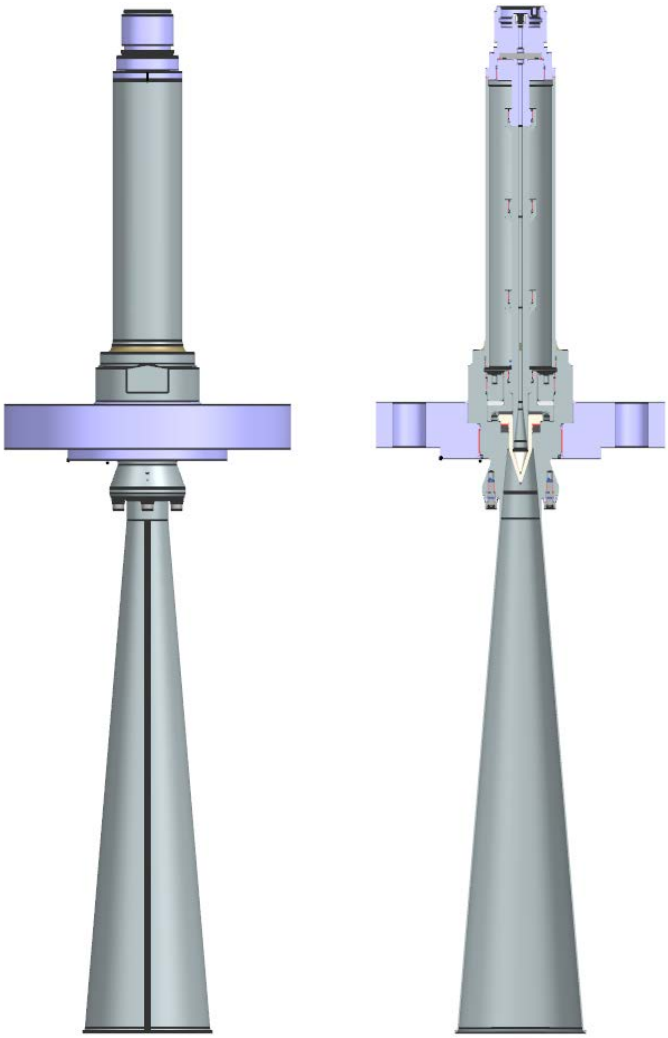
1 Horn antenna for high temperatures

Version: with glass window, 3” horn



Different Modes:

Country	Approved frequency	Used Frequency	Measuring range	material	bandwidth
Europe, USA, Canada, Belarus, Kazakhstan, Macedonia, Saudi Arabia, New Zealand, Australia, Ukraine, Serbia	75-85 GHz	76-84 GHz	≤ 30 m	liquid	8 GHz
		78,2-82,2 GHz	> 30 m – ≤ 60 m	liquid	4 GHz
		79-81 GHz	> 60 m – ≤ 120 m	liquid	2 GHz
		79-81 GHz	any	bulk	2 GHz
Brazil, Thailand, Taiwan, South Korea, Japan	77-81 GHz	77-81 GHz	> 0 m – ≤ 60 m	liquid	4 GHz
		79-81 GHz	> 60 m – ≤ 120 m	liquid	2 GHz
		79-81 GHz	any	bulk	2 GHz
China, India, Indonesia, Malaysia, South Africa	76-77 GHz	76-77 GHz	any	any	1 GHz
Russia	78-84 GHz	78,2-82,2 GHz	> 0 m – ≤ 60 m	liquid	4 GHz
		79-81 GHz	> 60 m – ≤ 120 m	liquid	2 GHz
		79-81 GHz	any	bulk	2 GHz

1.1 Electrical Data (at center frequency) for Europe and USA

Center frequency	80 GHz
Antenna gain	28,8 dBi
Bandwidth	± 4 GHz
HPBW (E-plane)	3,5°
HPBW (H-plane)	3,1°
Side lobe suppression (E-plane)	15,4 dB (1. Sideline at ±7,5°)
Side lobe suppression (H-plane)	13,7 dB (1. Sideline at ±5,0°)

1.1.1 Electrical Data for the complete bandwidth

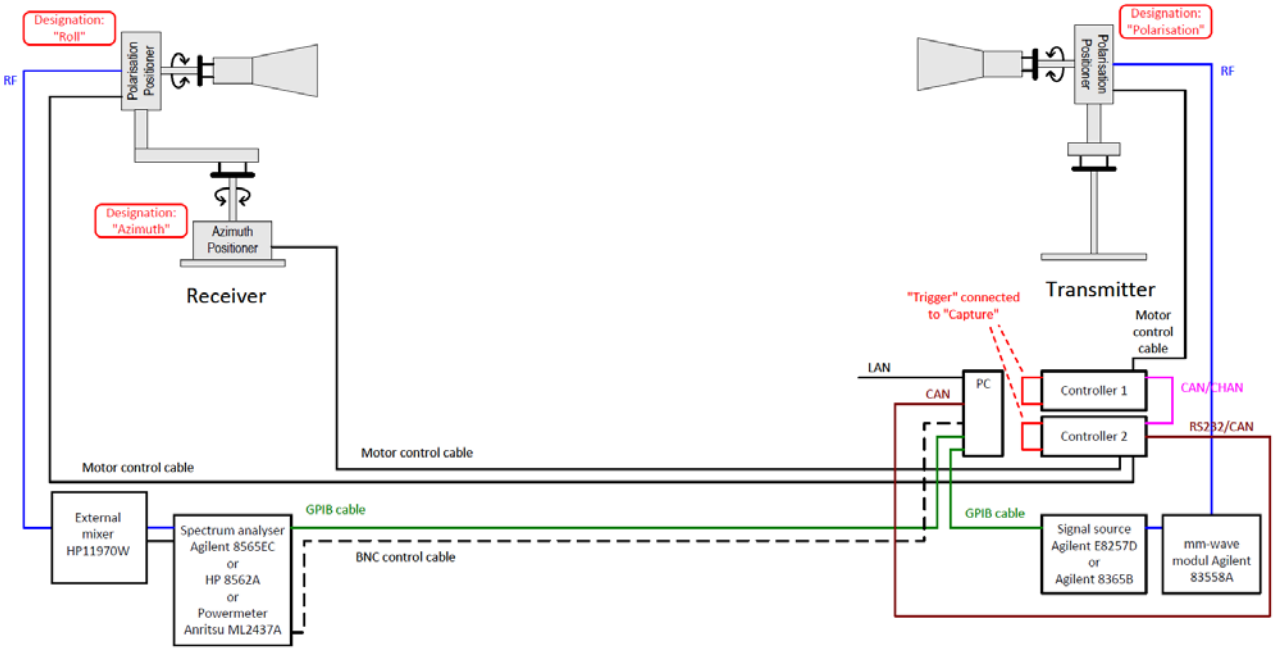
Return loss S11 (frequency band)	15,2 – 29,3dB
10 dB bandwidth	>11,9 GHz
15 dB bandwidth	>10,6 GHz
20 dB bandwidth	-
Impedance	50 Ω
Polarisation	linear

1.2 Mechanical Data

Antenna diameter	75 mm
Temperature range	-196...+450°C
Process pressure	-1...+ 160 bar
Wetted parts	Ceramic, stainless steel
Electrical connection	Hollow Waveguide Ø 2,6mm

1.3 Measurement setup and principle

The antenna patterns are measured in a measuring chamber specifically constructed for that purpose. The measurement setup is shown in the following drawing:



To determine the antenna gain the gain-transfer method (gain-comparison measurement) is used. First a standard gain horn is measured in the above described setup and the results recorded. Standard gain horn information:

Manufacturer:	FLANN MICROWAVE
Model No.:	26240-20dB
Nominal Gain:	20dB

Details of the standard gain horn can be found in the separately provided datasheet.

After that the VEGA antenna is measured and the results are compared to the data of the known standard gain horn to determine the antenna values.

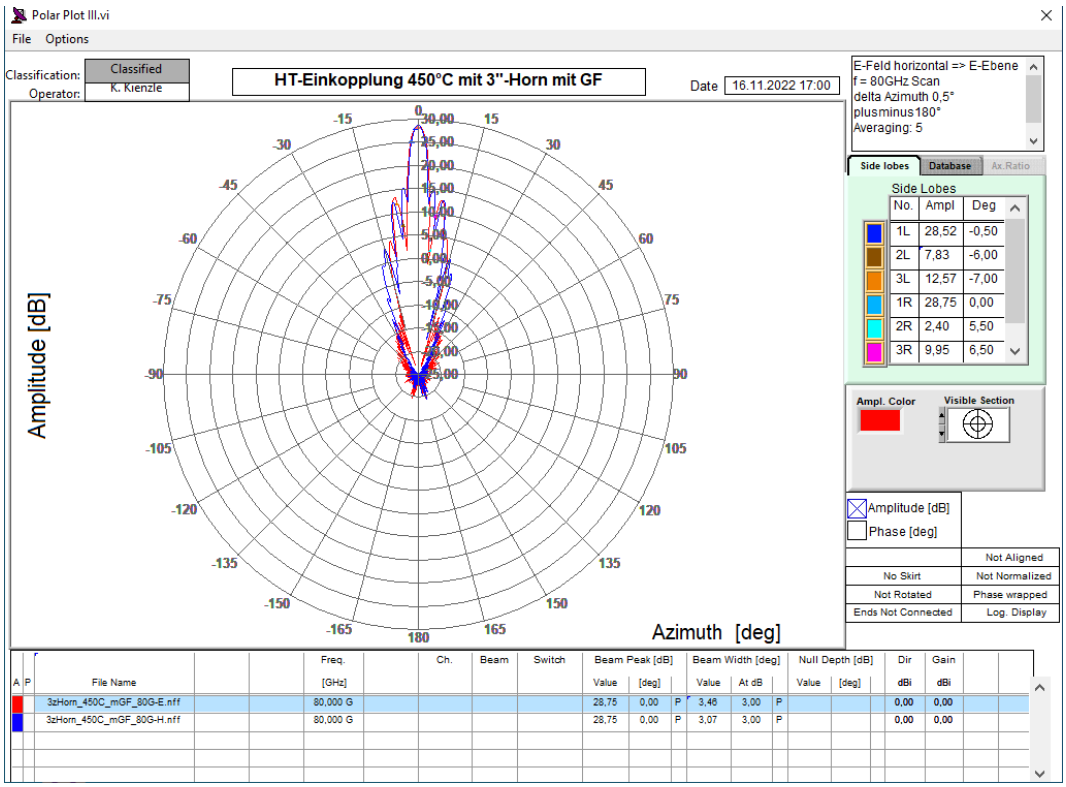
The standard gain horn is a fully mechanical part that is coated to avoid possible corrosion. Before the start of each measurement it is checked for mechanical damages. Therefore a calibration of this part is not necessary.
The Spectrum Analyzer is regularly calibrated to make sure the measurement results are accurate. Measurement on the standard gain antenna and the DUT are done without changing any settings of the RF-source. Since a gain-comparison measurement (relative measurement) is used to determine the antenna gain it is not necessary to calibrate other equipment in the test setup.

1.4 Antenna Patterns

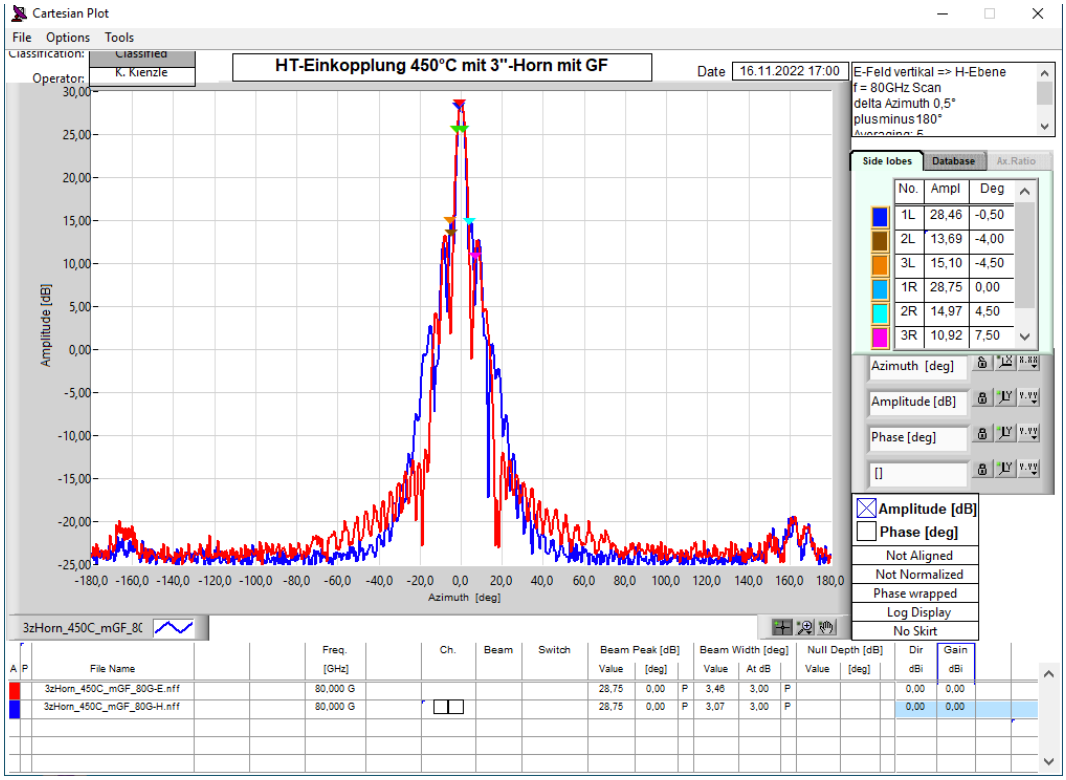
Red curve: E-plane, blue curve: H-plane

1.4.1 Antenna Patterns at 80 GHz

a) Polar Diagram

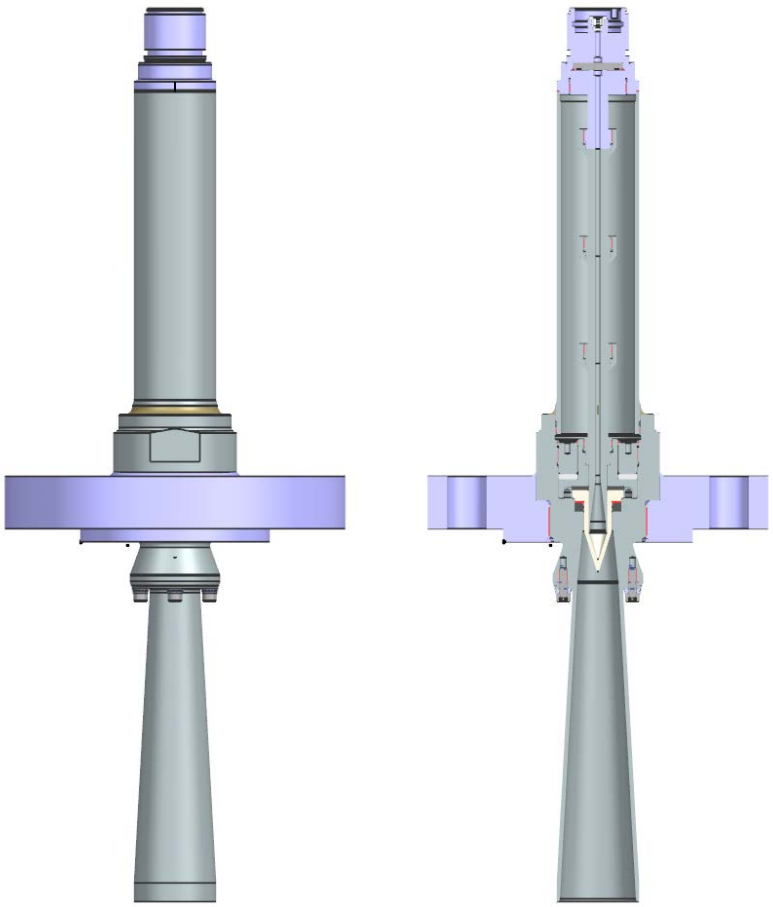


b) Cartesian Diagram



2 Horn antenna for high temperatures

Version: with glass window, 1,5” horn



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		79-81 GHz	> 60 m – ≤ 120 m	liquid	2 GHz
		79-81 GHz	any	bulk	2 GHz

2.1 Electrical Data (at center frequency) for Europe and USA

Center frequency	80 GHz
Antenna gain	23,3 dBi
Bandwidth	± 4 GHz
HPBW (E-plane)	6,4°
HPBW (H-plane)	5,7°
Side lobe suppression (E-plane)	13,3 dB (1. Sideline at ±9,0°)
Side lobe suppression (H-plane)	12,5 dB (1. Sideline at ±9,5°)

2.1.1 Electrical Data for the complete bandwidth

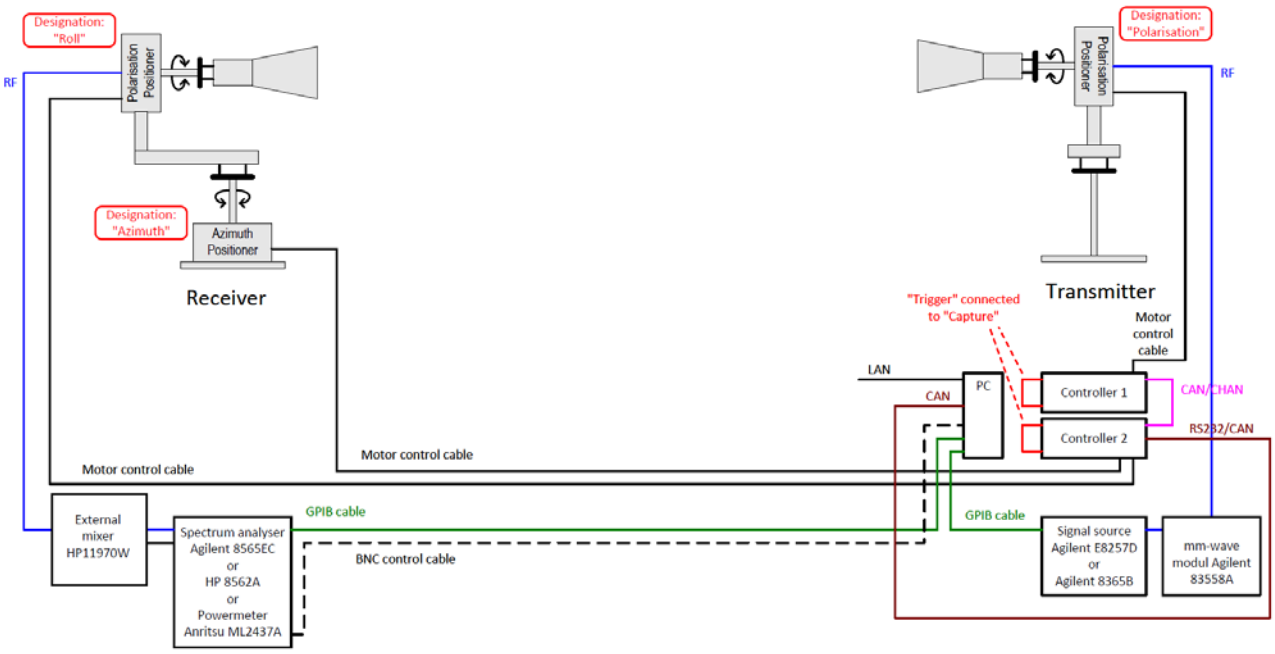
Return loss S11 (frequency band)	15,3 – 29,2dB
10 dB bandwidth	>11,8 GHz
15 dB bandwidth	>10,6 GHz
20 dB bandwidth	-
Impedance	50 Ω
Polarisation	linear

2.2 Mechanical Data

Antenna diameter	40 mm
Temperature range	-196...+450°C
Process pressure	-1...+ 160 bar
Wetted parts	Ceramic, stainless steel
Electrical connection	Hollow Waveguide Ø 2,6mm

2.3 Measurement setup and principle

The antenna patterns are measured in a measuring chamber specifically constructed for that purpose. The measurement setup is shown in the following drawing:



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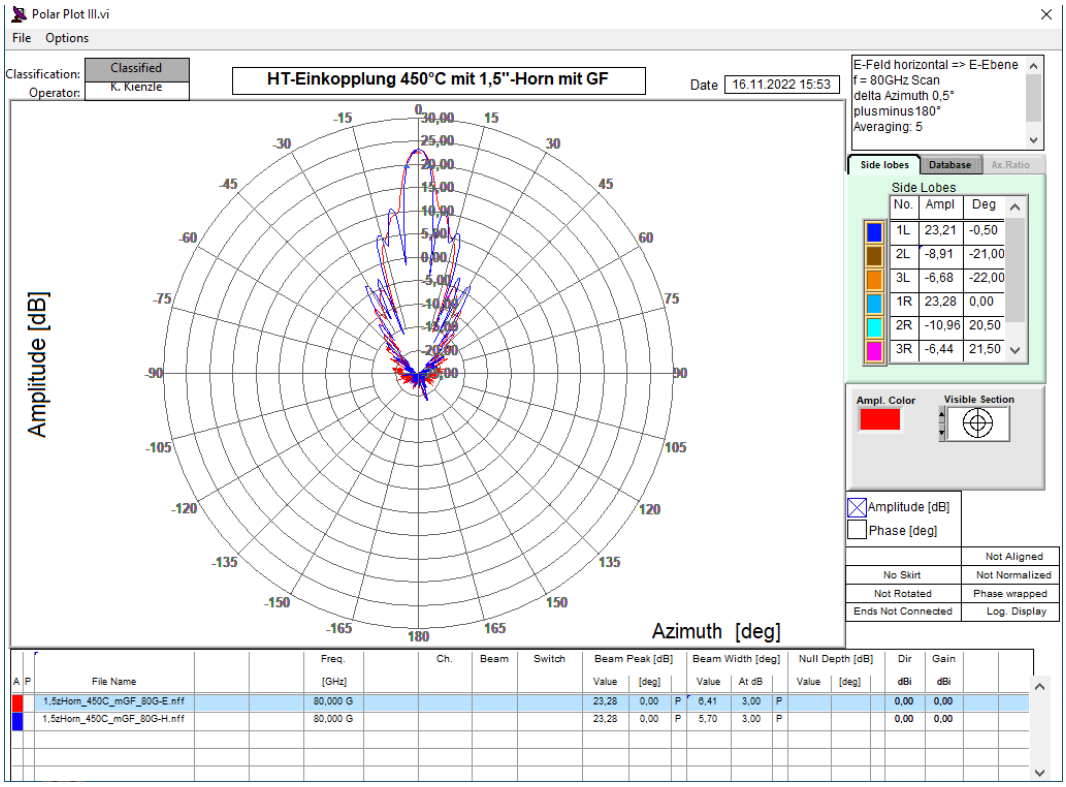
2.4 Antenna Patterns

Red curve: E-plane, blue curve: H-plane

2.4.1 Antenna Patterns at 80 GHz

a) Polar Diagram



b) Cartesian Diagram