SCHWARZBECK
Mess-Elektronik

BBHA 9120 A

Doppelsteg Breitband Hornantenne
Double Ridged Broadband Horn Antenna

Beschreibung:
Linear polarisierte Doppelsteg Breitband Hornantenne in Aluminium-ausführung für Empfangs- und Sendeanwendungen

Description:
Linear polarized Double Ridged Broadband Horn Antenna (Aluminium) for Receive and Transmit Applications.

Technische Daten:		***Specifications:***
Frequenzbereich, nominell:	1 GHz...5 GHz	*Nominal Frequency Range:*
Nutzbarer Frequenzbereich:	800 MHz ... 10 GHz	*Usable Frequency Range:*
Isotropgewinn:	6 ... 14 dBi	*Isotropic Gain:*
Antennenfaktor:	22 ... 32 (40) dB/m	*Antenna Factor:*
Impedanz, nominell:	50 Ω	*Nominal Impedance:*
Stehwellenverhältnis SWR typisch:	≈1.5	*Standing Wave Ratio SWR typical:*
Vor- Rückverhältnis:	> 25 dB (f > 1.3 GHz)	*Front to Back Ratio:*
Polarisationsentkopplung:	> 25 dB (0.8 GHz...5 GHz)	*Cross Polarisation:*
3 dB Öffnungswinkel typ.(E-Ebene):	90°-10°	*3 dB Beamwidth typ. (E-Plane):*
3 dB Öffnungswinkel typ.(H-Ebene):	60°-10°	*3 dB Beamwidth typ. (H-Plane):*
Max. Eingangsleistung:	300 W (cont.) 500 W (peak)	*Max. Input Power:*
Anschlußart: N-Buchse		*N-Connector female*
Halterung: 22 mm Rohr, Rastring		*Mount: 22 mm Tube, Indexing Ring*
Breite x Länge x Dicke:	245 x 220 (408) x 142 mm	*Width x Length x Thickness:*
Gewicht:	1.3 kg	*Weight:*

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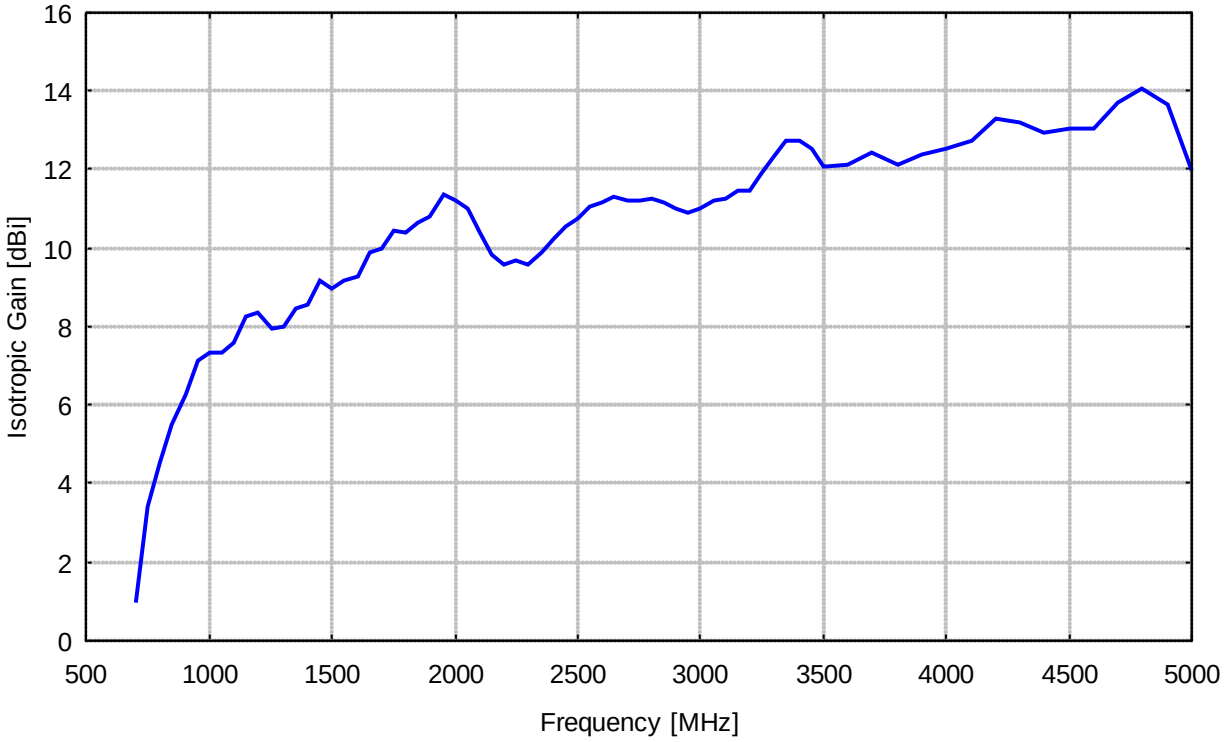
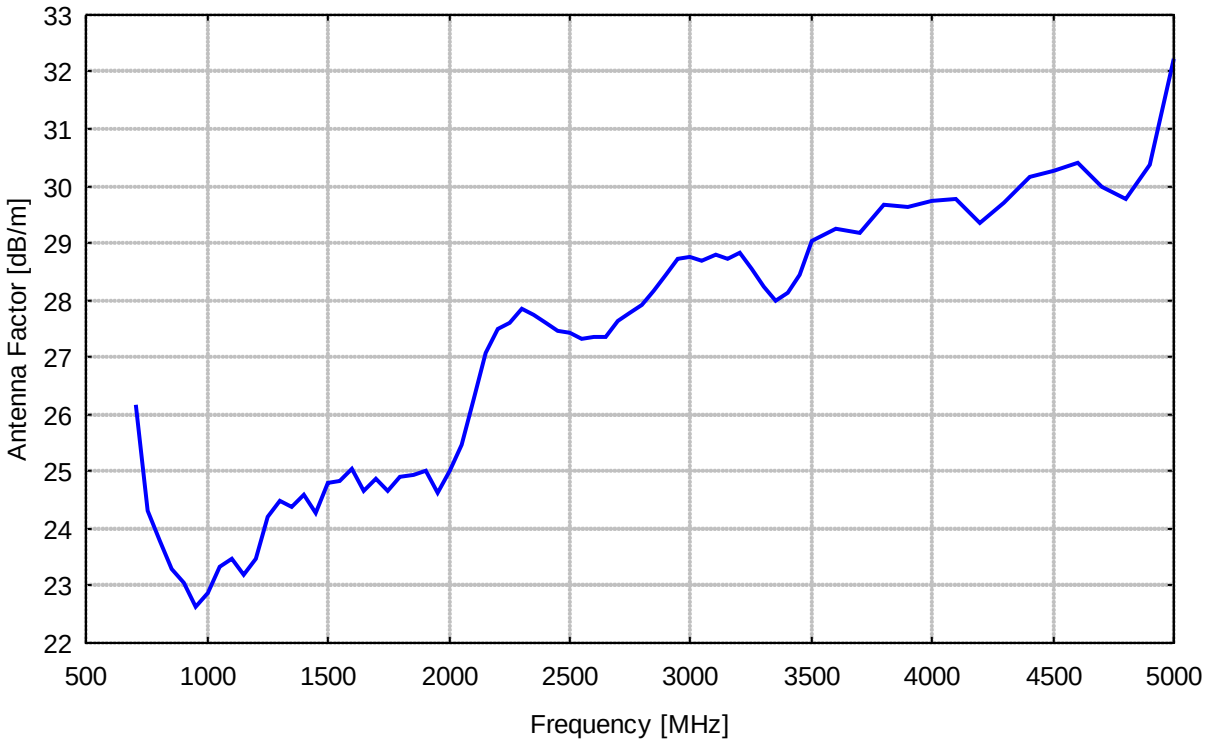
Frequency	Gain(Isotr.)	Ant.-Factor
GHz	dBi	dB/m
0.70	0.95	26.17
0.75	3.41	24.31
0.80	4.51	23.77
0.85	5.51	23.30
0.90	6.26	23.05
0.95	7.15	22.63
1.00	7.33	22.89
1.05	7.33	23.32
1.10	7.59	23.46
1.15	8.24	23.19
1.20	8.34	23.46
1.25	7.94	24.22
1.30	8.02	24.48
1.35	8.46	24.37
1.40	8.55	24.59
1.45	9.16	24.29
1.50	8.94	24.80
1.55	9.18	24.85
1.60	9.27	25.03
1.65	9.90	24.67
1.70	9.96	24.87
1.75	10.43	24.65
1.80	10.40	24.92
1.85	10.63	24.94
1.90	10.78	25.01
1.95	11.38	24.64
2.00	11.23	25.01
2.05	10.98	25.48
2.10	10.41	26.26
2.15	9.81	27.06
2.20	9.57	27.50
2.25	9.66	27.61
2.30	9.60	27.86
2.35	9.90	27.74
2.40	10.22	27.60
2.45	10.55	27.46
2.50	10.76	27.42
2.55	11.04	27.31
2.60	11.17	27.35
2.65	11.31	27.37
2.70	11.19	27.65
2.75	11.22	27.79

Frequency	Gain(Isotr.)	Ant.-Factor
GHz	dBi	dB/m
2.80	11.26	27.90
2.85	11.14	28.18
2.90	11.02	28.45
2.95	10.88	28.74
3.00	11.01	28.75
3.05	11.21	28.70
3.10	11.24	28.80
3.15	11.45	28.74
3.20	11.48	28.84
3.25	11.91	28.55
3.30	12.34	28.25
3.35	12.72	28.00
3.40	12.71	28.14
3.45	12.54	28.44
3.50	12.07	29.04
3.60	12.10	29.25
3.70	12.42	29.17
3.80	12.14	29.68
3.90	12.39	29.65
4.00	12.53	29.73
4.10	12.72	29.76
4.20	13.31	29.37
4.30	13.19	29.70
4.40	12.93	30.16
4.50	13.02	30.27
4.60	13.06	30.42
4.70	13.69	29.97
4.80	14.08	29.76
4.90	13.64	30.38
5.00	11.98	32.22
5.50	9.43	35.60
6.00	13.79	32.00
6.50	10.51	35.96
7.00	12.18	34.94
7.50	12.74	34.98
8.00	10.64	37.65
8.50	13.26	35.55
9.00	13.26	36.05
9.50	13.78	36.00
10.00	10.02	40.20

Isotropgewinn



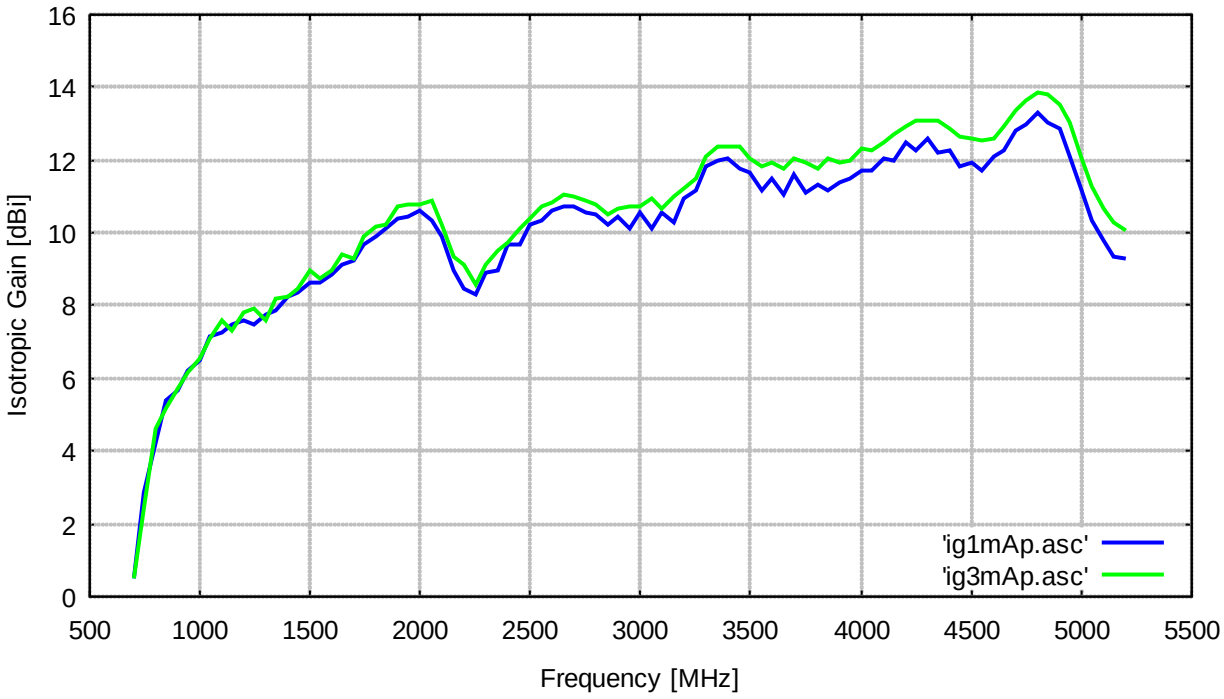
Antennen-Wandlungsmaß



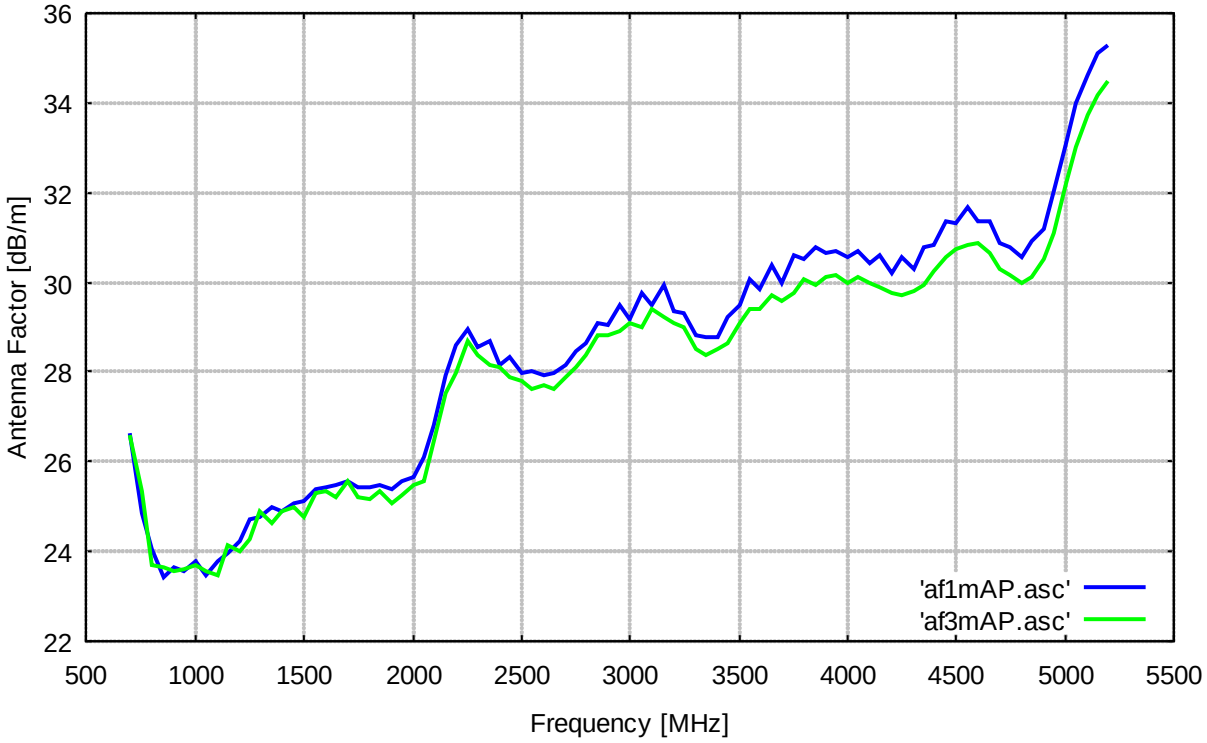
Frequency	Gain(Isotr.) 1 m Aperture	Ant.-Factor 1 m Aperture	Gain(Isotr.) 3 m Aperture	Ant.-Factor 3 m Aperture
MHz	dBi	dB/m	dBi	dB/m
700.00	0.50	26.62	0.51	26.61
750.00	2.87	24.85	2.39	25.34
800.00	4.25	24.03	4.60	23.69
850.00	5.37	23.44	5.17	23.64
900.00	5.65	23.66	5.74	23.56
950.00	6.21	23.56	6.16	23.61
1000.00	6.46	23.76	6.52	23.70
1050.00	7.16	23.48	7.07	23.57
1100.00	7.27	23.78	7.60	23.45
1150.00	7.47	23.96	7.30	24.13
1200.00	7.58	24.23	7.79	24.01
1250.00	7.46	24.70	7.90	24.26
1300.00	7.76	24.74	7.60	24.90
1350.00	7.86	24.97	8.18	24.64
1400.00	8.25	24.89	8.26	24.88
1450.00	8.36	25.09	8.48	24.97
1500.00	8.62	25.12	8.97	24.77
1550.00	8.64	25.39	8.74	25.29
1600.00	8.86	25.44	8.96	25.34
1650.00	9.10	25.47	9.38	25.19
1700.00	9.25	25.58	9.27	25.56
1750.00	9.65	25.43	9.89	25.19
1800.00	9.88	25.45	10.17	25.15
1850.00	10.10	25.46	10.24	25.32
1900.00	10.41	25.39	10.71	25.08
1950.00	10.46	25.56	10.75	25.27
2000.00	10.59	25.65	10.75	25.49
2050.00	10.33	26.12	10.88	25.57
2100.00	9.88	26.79	10.22	26.45
2150.00	8.94	27.93	9.35	27.52
2200.00	8.49	28.58	9.12	27.95
2250.00	8.32	28.94	8.58	28.68
2300.00	8.89	28.57	9.11	28.35
2350.00	8.94	28.70	9.49	28.15
2400.00	9.69	28.14	9.74	28.09
2450.00	9.69	28.31	10.12	27.89
2500.00	10.20	27.98	10.38	27.80
2550.00	10.32	28.03	10.72	27.63
2600.00	10.59	27.93	10.83	27.69
2650.00	10.70	27.98	11.06	27.62
2700.00	10.69	28.16	10.98	27.86
2750.00	10.56	28.45	10.90	28.11
2800.00	10.50	28.66	10.78	28.38
2850.00	10.22	29.10	10.50	28.81
2900.00	10.43	29.03	10.64	28.83
2950.00	10.14	29.48	10.71	28.91
3000.00	10.57	29.19	10.70	29.07
3050.00	10.14	29.76	10.91	28.99
3100.00	10.57	29.47	10.67	29.38
3150.00	10.26	29.92	10.98	29.20
3200.00	10.96	29.36	11.22	29.10
3250.00	11.15	29.31	11.48	28.98
3300.00	11.79	28.80	12.11	28.49
3350.00	11.96	28.76	12.36	28.36

Frequency	Gain(Isotr.) 1 m Aperture	Ant.-Factor 1 m Aperture	Gain(Isotr.) 3 m Aperture	Ant.-Factor 3 m Aperture
MHz	dBi	dB/m	dBi	dB/m
3400.00	12.06	28.79	12.35	28.50
3450.00	11.74	29.24	12.36	28.62
3500.00	11.63	29.47	12.01	29.09
3550.00	11.15	30.08	11.83	29.40
3600.00	11.50	29.85	11.94	29.41
3650.00	11.07	30.40	11.78	29.69
3700.00	11.61	29.98	12.03	29.56
3750.00	11.11	30.59	11.95	29.75
3800.00	11.31	30.50	11.76	30.06
3850.00	11.16	30.77	12.01	29.92
3900.00	11.40	30.65	11.94	30.10
3950.00	11.48	30.67	11.98	30.17
4000.00	11.72	30.54	12.29	29.97
4050.00	11.68	30.69	12.25	30.12
4100.00	12.04	30.43	12.50	29.97
4150.00	12.00	30.58	12.70	29.88
4200.00	12.50	30.19	12.93	29.75
4250.00	12.25	30.54	13.06	29.73
4300.00	12.60	30.29	13.08	29.81
4350.00	12.20	30.79	13.06	29.93
4400.00	12.26	30.83	12.86	30.23
4450.00	11.82	31.37	12.65	30.54
4500.00	11.95	31.33	12.56	30.73
4550.00	11.72	31.66	12.55	30.83
4600.00	12.11	31.37	12.60	30.88
4650.00	12.23	31.34	12.91	30.66
4700.00	12.80	30.86	13.35	30.31
4750.00	12.99	30.77	13.61	30.14
4800.00	13.29	30.56	13.84	30.00
4850.00	13.03	30.90	13.81	30.12
4900.00	12.84	31.19	13.52	30.51
4950.00	12.08	32.04	13.01	31.11
5000.00	11.16	33.04	12.05	32.15
5050.00	10.32	33.97	11.29	33.00
5100.00	9.76	34.61	10.64	33.73
5150.00	9.34	35.11	10.27	34.18
5200.00	9.27	35.27	10.08	34.46

Isotropgewinn



Antennen-Wandlungsmaß



Erzeugung definierter Feldstärken BBHA 9120 A
Generating defined Field Strength BBHA 9120 A

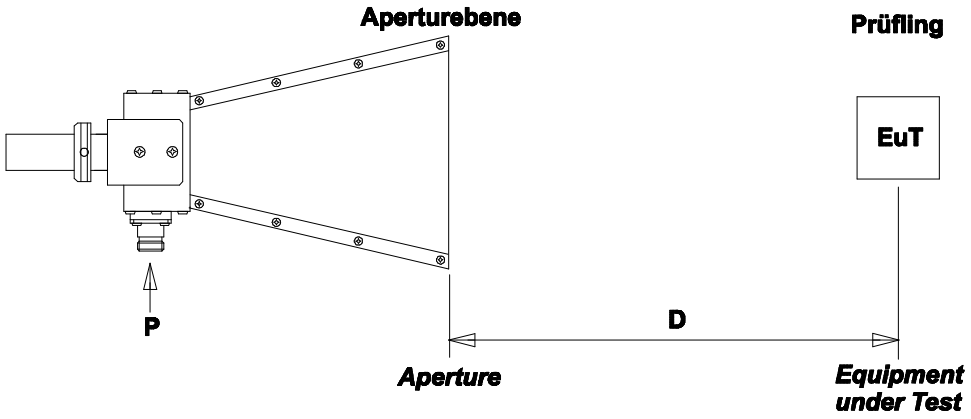
Erzeugung von Feldstärken unter Freiraumbedingungen vor der Aperturöffnung der Hornantenne (siehe Skizze und Angaben bei den Kurvenscharen). Wenn Anteile von Umgebungsreflexionen vorhanden sind, kann dies zu einer frequenz- und höhenabhängigen Änderung der Feldstärke führen. Die Leistungsangaben beziehen sich auf eine 50 Ω Quellimpedanz und unmodulierte Hochfrequenz (CW). Bei 80% Amplitudenmodulation ist die 1.8-fache Spannungsaussteuerung erforderlich, was in einem ca. 3.24-fachen Leistungsbedarf resultiert. Zur Steigerung der Feldstärke um den Faktor 10 ist die 100-fache Verstärkerleistung erforderlich.

Field strength generated under free-space conditions at a separation from the antenna aperture (see diagrams for several combinations of power and distance). If environmental reflections are present, this may lead to frequency and height dependent fieldstrengths. The power figures refer to a 50 Ω source and an unmodulated (cw) signal. An 80% Amplitude Modulation requires a 1.8 times higher voltage, resulting in 3.24 times higher power compared to cw. A fieldstrength increase of factor 10 requires 100 times amplifier-power.

Bei der Erzeugung von hohen Feldstärken müssen die relevanten Sicherheitsvorschriften und Normen beachtet werden! Missachtung dieser Vorschriften kann zu Schädigungen der Gesundheit führen!

The safety precautions and relevant standards must be considered while performing tests with high fieldstrength! Ignoring these standards and precautions may result in severe danger for health!

Modulation (AM)	50 %	60 %	70 %	80 %	90 %	95%	*Modulation (AM)*
Leistungsfaktor	2.25	2.56	2.89	3.24	3.61	3.8	*Power Factor*
Zusätzlicher Leistungsbedarf [dB]	+3.5	+4.1	+4.6	+5.1	+5.6	+5.8	*Additional Power Requirement [dB]*



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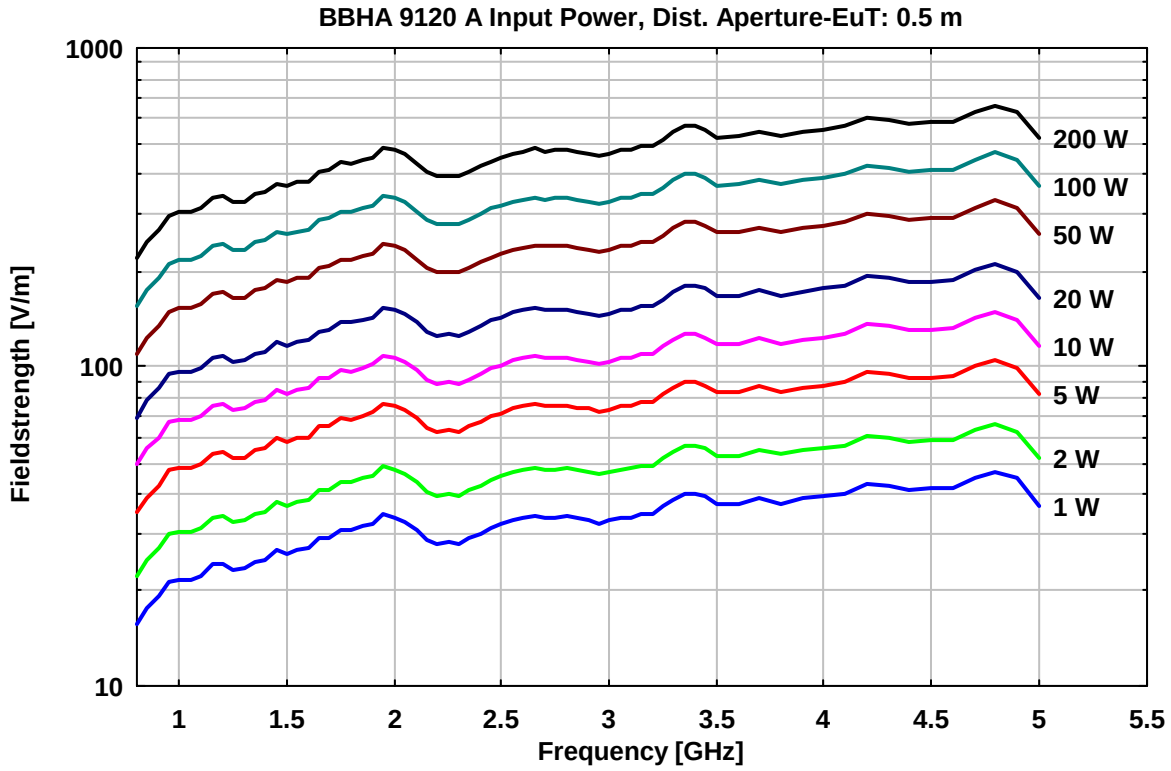
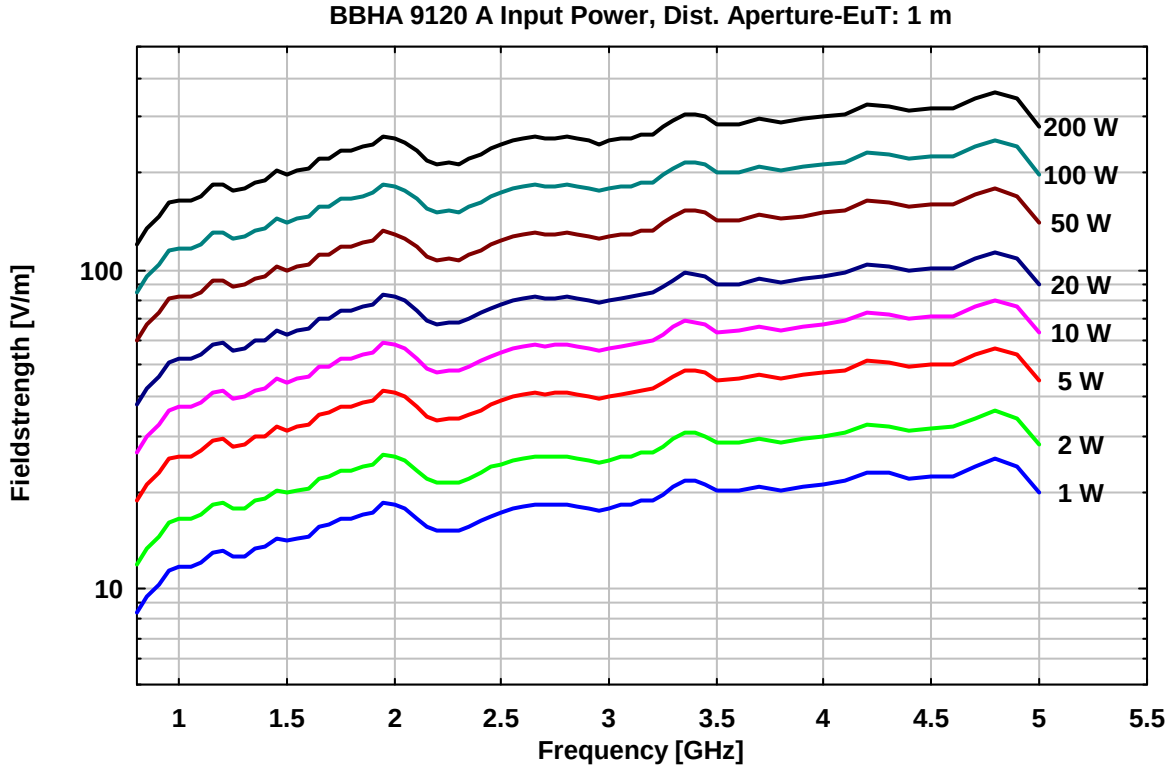
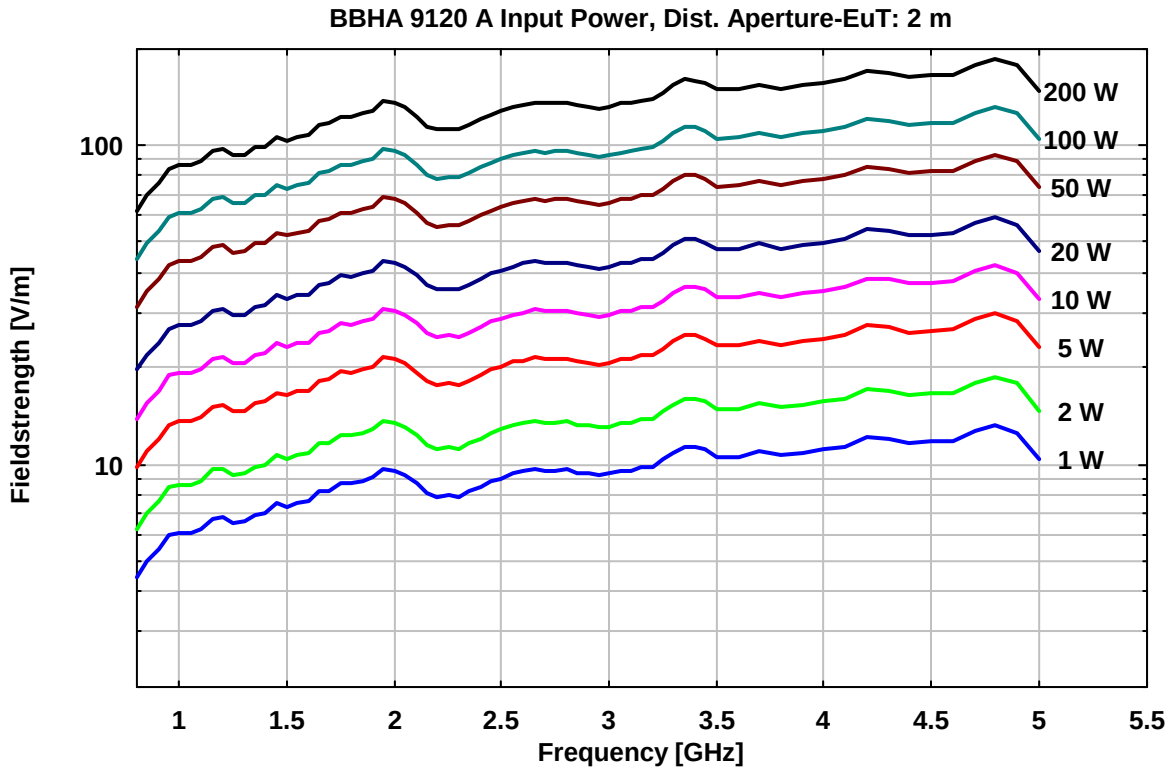
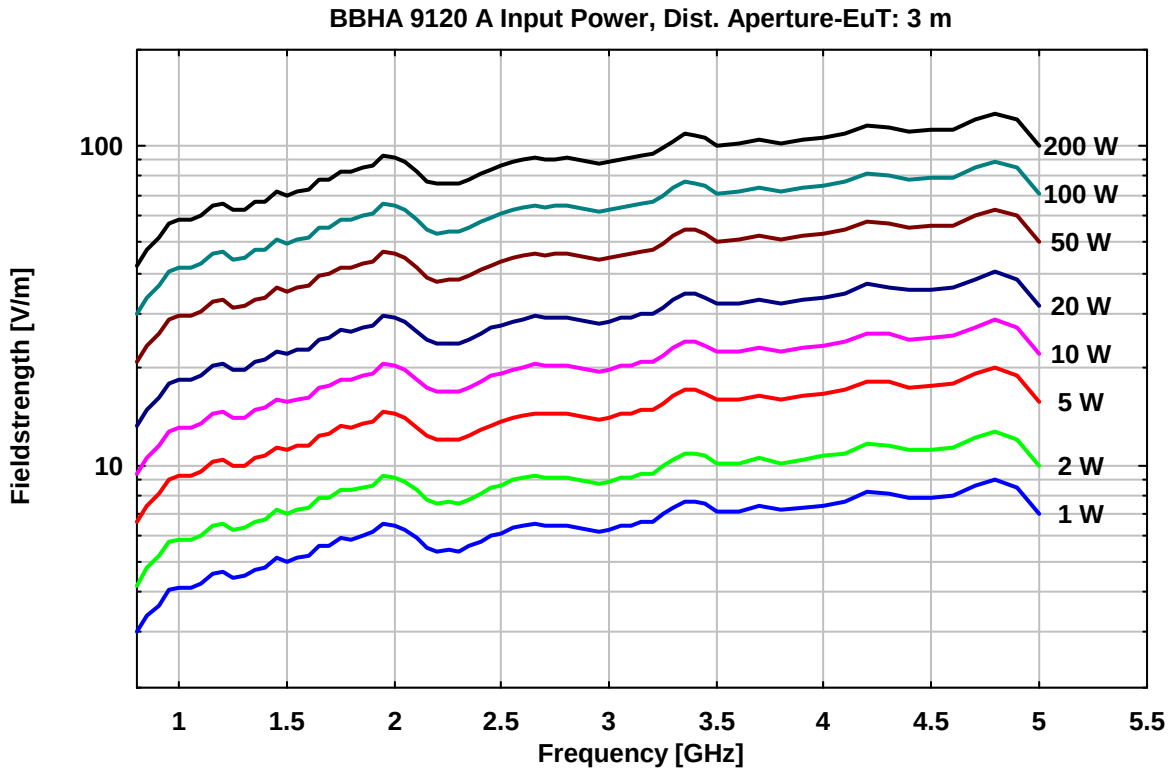
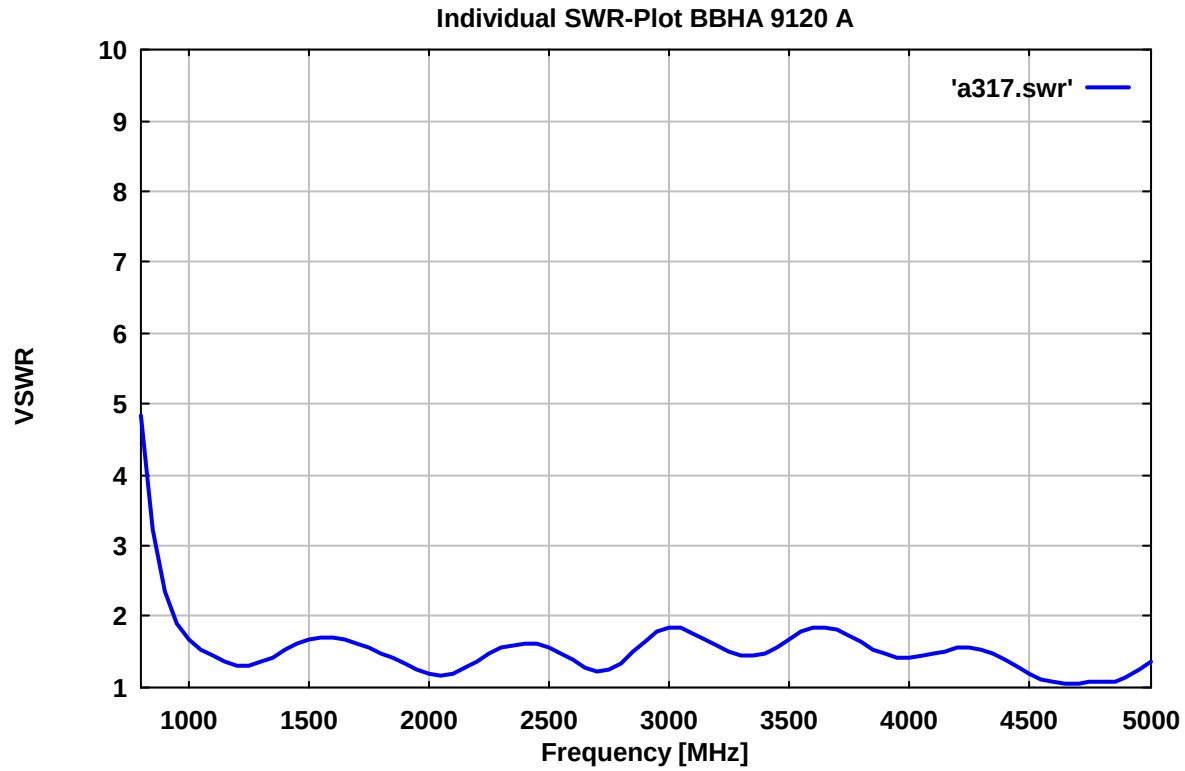
Erzeugte Elektrische Feldstärke vor der Antennenspitze
unmoduliert, Eingangsleistung an N-Buchse, Reflexionsfreie Umgebung
Generated Electrical Fieldstrength in front of Antenna Tip
no modulation, Input Power at N-Connector, Anechoic Environmental Conditions

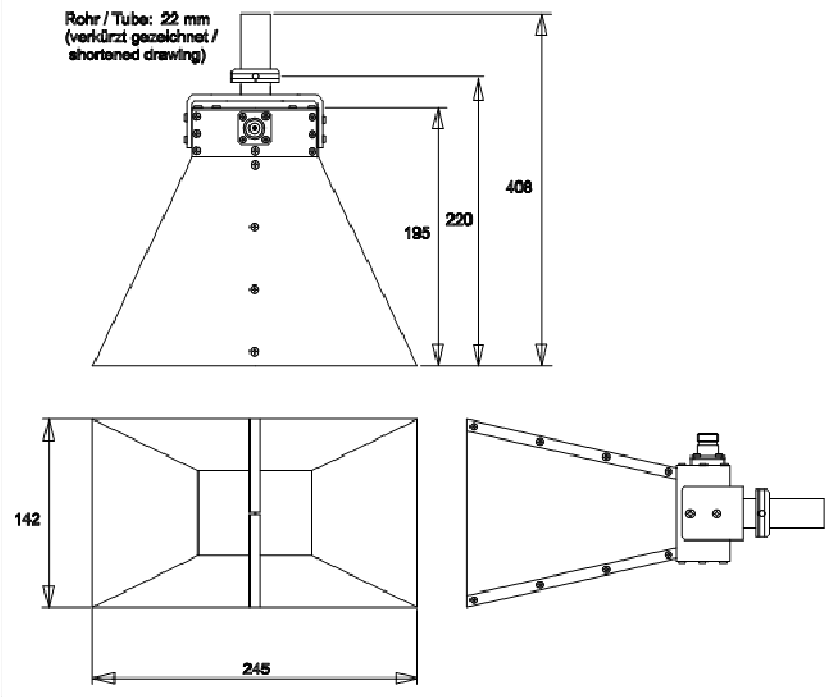





BBHA 9120 A Input Power, Dist. Aperture-EuT: 2 m
Fieldstrength [V/m]
100
10
200 W
100 W
50 W
20 W
10 W
5 W
2 W
1 W
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
Frequency [GHz]


BBHA 9120 A Input Power, Dist. Aperture-EuT: 3 m
Fieldstrength [V/m]
100
10
200 W
100 W
50 W
20 W
10 W
5 W
2 W
1 W
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
Frequency [GHz]





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