

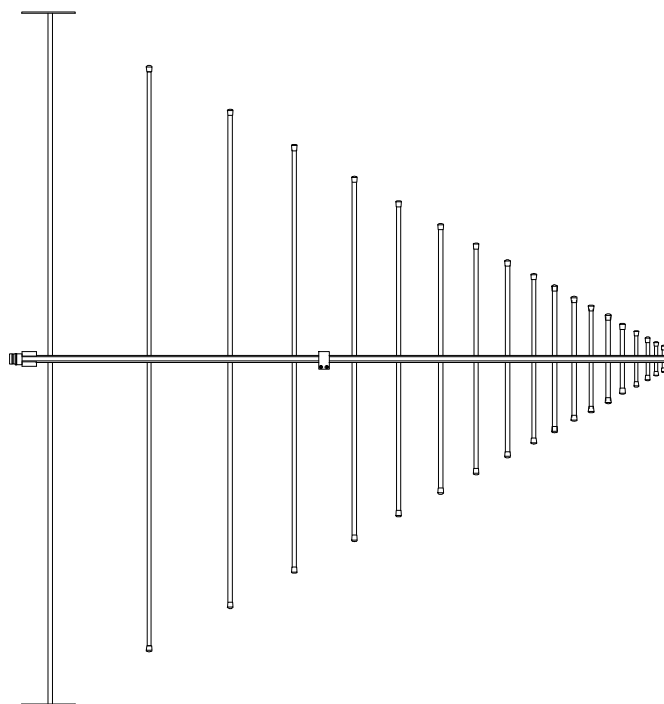
SCHWARZBECK MESS - ELEKTRONIK

An der Klinge 29 D-69250 Schönau Tel.: (+49)6228/1001
Fax.: (+49)6228/1003 E-mail: schwarzbeck@t-online.de

VULP 9118 D

Kalibrierte Logarithmisch-Periodische Messantenne
Calibrated Logarithmic-Periodic Test-Antenna

95 MHz ... 1.5 GHz
(80 MHz ... 1.8 GHz)



Handbuch
Manual

SCHWARZBECK MESS - ELEKTRONIK

An der Klinge 29 D-69250 Schönau Tel.: 06228/1001 Fax.: (49)6228/1003

Logarithmisch Periodische Breitband Antenne VULP 9118 D

Logarithmic Periodic Broadband Antenna VULP 9118 D

95 MHz - 1.5 GHz, 1 kW

Frequency	Distance	Wavelength	Attenuation	Gain(Isotr.)	Gain(Dipole)	Ant.-Factor
Frequenz	Abstand	Wellenlänge	Dämpfung	Isotropgewinn	Gewinn über Dipol	Ant.-Wandlungsmaß
MHz	m	m	dB	dBi	dBd	dB/m
65.00	5.00	4.62	18.62	2.03	-0.12	4.45
70.00	5.00	4.29	17.77	2.78	0.63	4.35
75.00	5.00	4.00	19.51	2.21	0.06	5.51
80.00	5.00	3.75	19.76	2.36	0.21	5.92
85.00	5.00	3.53	18.41	3.30	1.15	5.51
90.00	5.00	3.33	16.69	4.41	2.26	4.90
95.00	4.84	3.16	15.53	5.08	2.93	4.69
100.00	4.69	3.00	14.56	5.66	3.50	4.56
110.00	4.44	2.73	13.78	6.22	4.07	4.83
120.00	4.23	2.50	14.21	6.17	4.02	5.63
130.00	4.05	2.31	14.25	6.31	4.16	6.19
140.00	3.90	2.14	14.19	6.50	4.35	6.64
150.00	3.77	2.00	14.35	6.57	4.42	7.17
160.00	3.65	1.88	14.35	6.72	4.57	7.59
170.00	3.55	1.76	14.23	6.91	4.76	7.92
180.00	3.46	1.67	14.44	6.95	4.80	8.38
190.00	3.38	1.58	14.65	6.97	4.82	8.82
200.00	3.31	1.50	15.04	6.91	4.76	9.33
220.00	3.18	1.36	15.81	6.77	4.62	10.30
240.00	3.08	1.25	16.10	6.85	4.70	10.97
260.00	2.99	1.15	16.52	6.86	4.71	11.65
280.00	2.91	1.07	17.20	6.73	4.58	12.43
300.00	2.85	1.00	17.64	6.71	4.56	13.05
325.00	2.78	0.92	18.42	6.56	4.41	13.90
350.00	2.71	0.86	18.37	6.81	4.66	14.29
375.00	2.66	0.80	18.94	6.74	4.59	14.96
400.00	2.62	0.75	19.59	6.62	4.47	15.64
425.00	2.57	0.71	19.98	6.62	4.47	16.16
450.00	2.54	0.67	20.13	6.73	4.58	16.55
475.00	2.51	0.63	20.18	6.89	4.74	16.87
500.00	2.48	0.60	20.93	6.68	4.53	17.52
550.00	2.43	0.55	21.66	6.65	4.50	18.38
600.00	2.38	0.50	22.34	6.61	4.46	19.18
650.00	2.35	0.46	22.49	6.81	4.66	19.67
700.00	2.32	0.43	23.70	6.48	4.33	20.65
750.00	2.29	0.40	23.61	6.77	4.62	20.95
800.00	2.27	0.38	24.86	6.38	4.23	21.90
850.00	2.25	0.35	24.96	6.55	4.40	22.25
900.00	2.23	0.33	25.53	6.48	4.33	22.82
950.00	2.21	0.32	26.55	6.18	4.03	23.60
1000.00	2.20	0.30	26.20	6.55	4.40	23.67
Frequency	Distance	Wavelength	Attenuation	Gain(Isotr.)	Gain(Dipole)	Ant.-Factor
Frequenz	Abstand	Wellenlänge	Dämpfung	Isotropgewinn	Gewinn über Dipol	Ant.-Wandlungsmaß
MHz	m	m	dB	dBi	dBd	dB/m

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Logarithmisch Periodische Breitband Antenne VULP 9118 D *Logarithmic Periodic Broadband Antenna VULP 9118 D* 95 MHz - 1.5 GHz, 1 kW

Frequency	Distance	Wavelength	Attenuation	Gain(Isotr.)	Gain(Dipole)	Ant.-Factor
Frequenz	Abstand	Wellenlänge	Dämpfung	Isotrop-gewinn	Gewinn über Dipol	Ant.-Wandlungsmaß
MHz	m	m	dB	dBi	dBd	dB/m
1000.00	2.20	0.30	26.20	6.55	4.40	23.67
1050.00	2.19	0.29	26.66	6.50	4.35	24.14
1100.00	2.17	0.27	27.56	6.23	4.08	24.82
1150.00	2.16	0.26	28.46	5.95	3.80	25.48
1200.00	2.15	0.25	28.34	6.18	4.02	25.63
1250.00	2.14	0.24	28.70	6.15	4.00	26.01
1300.00	2.14	0.23	29.40	5.96	3.81	26.54
1350.00	2.13	0.22	30.88	5.36	3.21	27.46
1400.00	2.12	0.21	31.25	5.32	3.17	27.82
1450.00	2.11	0.21	31.00	5.59	3.43	27.86
1500.00	2.11	0.20	31.36	5.54	3.39	28.20
1550.00	2.10	0.19	32.78	4.96	2.81	29.06
1600.00	2.10	0.19	35.16	3.90	1.75	30.40
1650.00	2.09	0.18	36.62	3.29	1.14	31.28
1700.00	2.09	0.18	37.87	2.79	0.63	32.04
1750.00	2.08	0.17	37.28	3.20	1.05	31.88
1800.00	2.08	0.17	35.77	4.07	1.91	31.26
1850.00	2.07	0.16	35.58	4.27	2.12	31.30
1900.00	2.07	0.16	36.99	3.67	1.52	32.13
1950.00	2.07	0.15	39.44	2.55	0.40	33.47
2000.00	2.06	0.15	42.52	1.11	-1.04	35.13

Kalibrierung mit Endscheiben am hintersten Element. Die Endscheiben sind als Erweiterung des nutzbaren Frequenzbereichs gedacht. Sie haben nur Einfluss unterhalb von 80 MHz

Calibration with End Discs at the rear element. The End Discs are used as frequency range extension between 65 and 80 MHz. Their influence in the nominal frequency range is negligible.

Messunsicherheit:

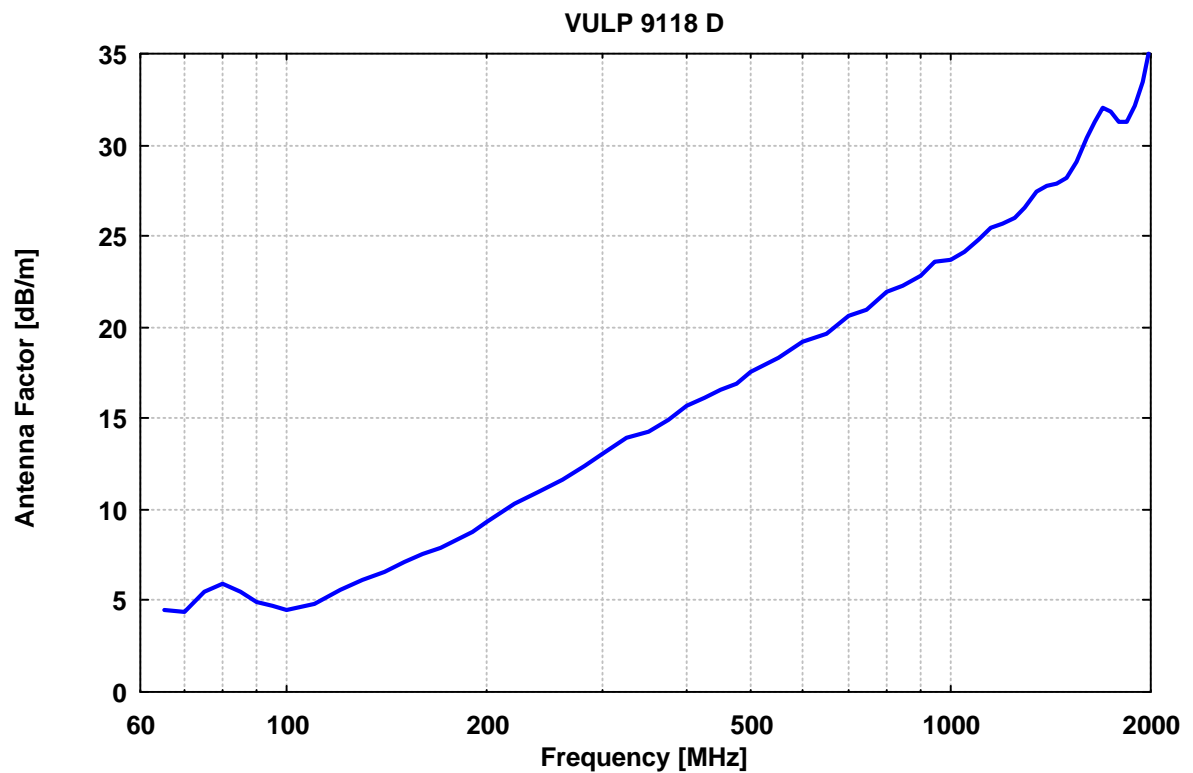
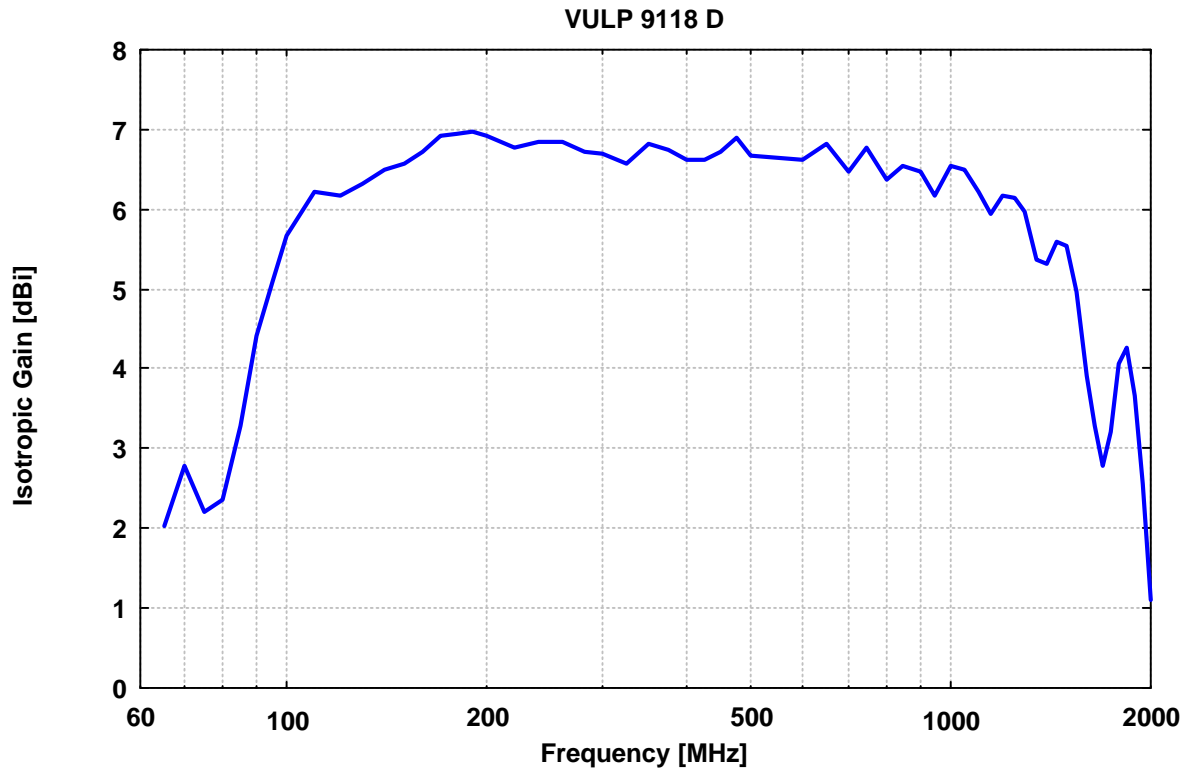
+/- 0.7 dB

Measurement Uncertainty:

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Logarithmisch Periodische Breitband Antenne VULP 9118 D
Logarithmic Periodic Broadband Antenna VULP 9118 D
95 MHz - 1.5 GHz, 1 kW



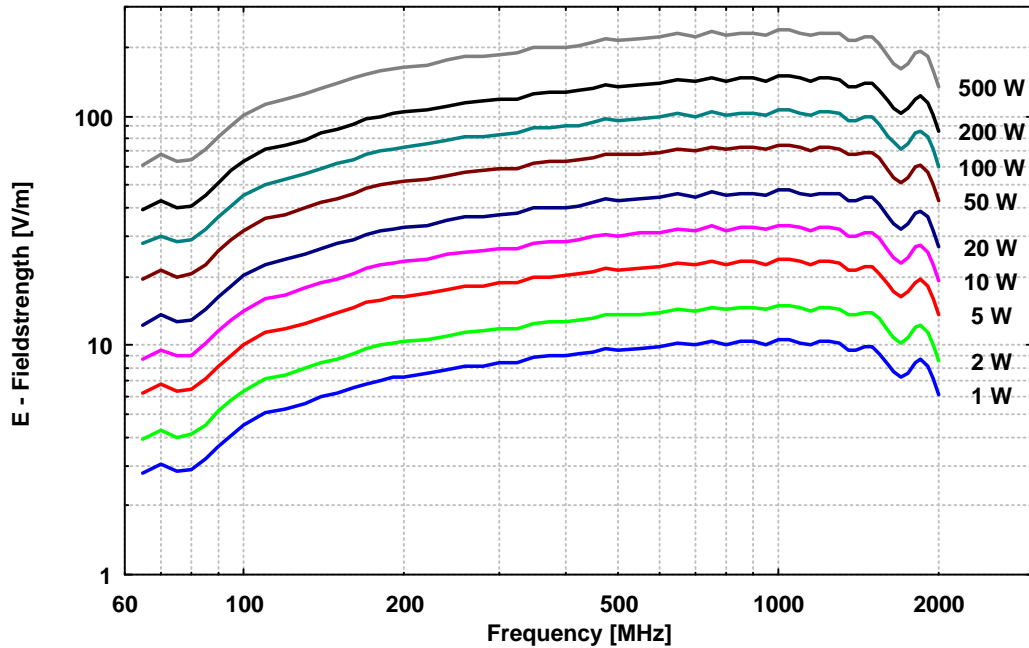
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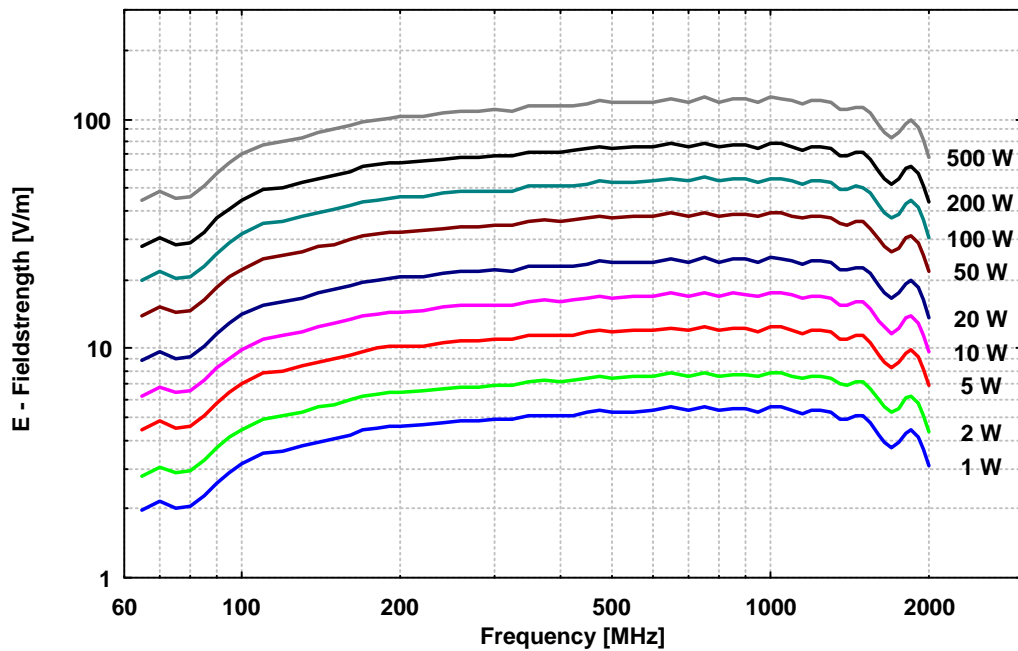
Logarithmisch Periodische Breitbandantenne VULP 9118 D (mit Endscheiben) *Logarithmic Periodic Broadband Antenna VULP 9118 D (with End Discs)* 95 - 1500 (2000) MHz, 1 kW

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

VULP 9118 D, End Discs, 1 m Tip-EuT



VULP 9118 D, End Discs, 2 m Tip-EuT

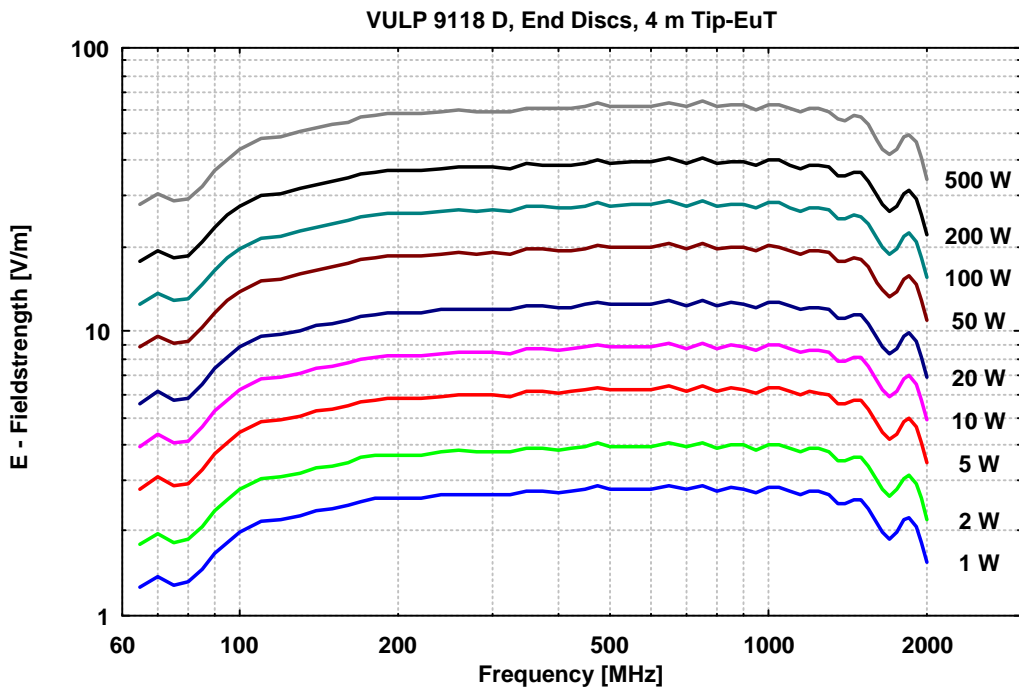
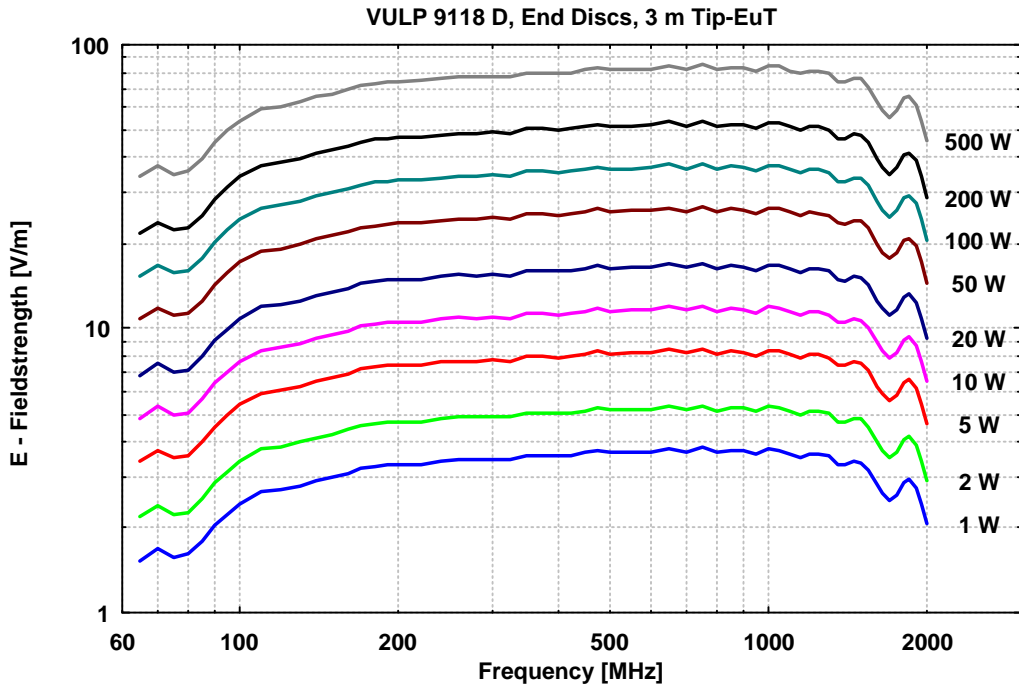


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Logarithmisch Periodische Breitbandantenne VULP 9118 D (mit Endscheiben) *Logarithmic Periodic Broadband Antenna VULP 9118 D (with End Discs)* 95 - 1500 (2000) MHz, 1 kW

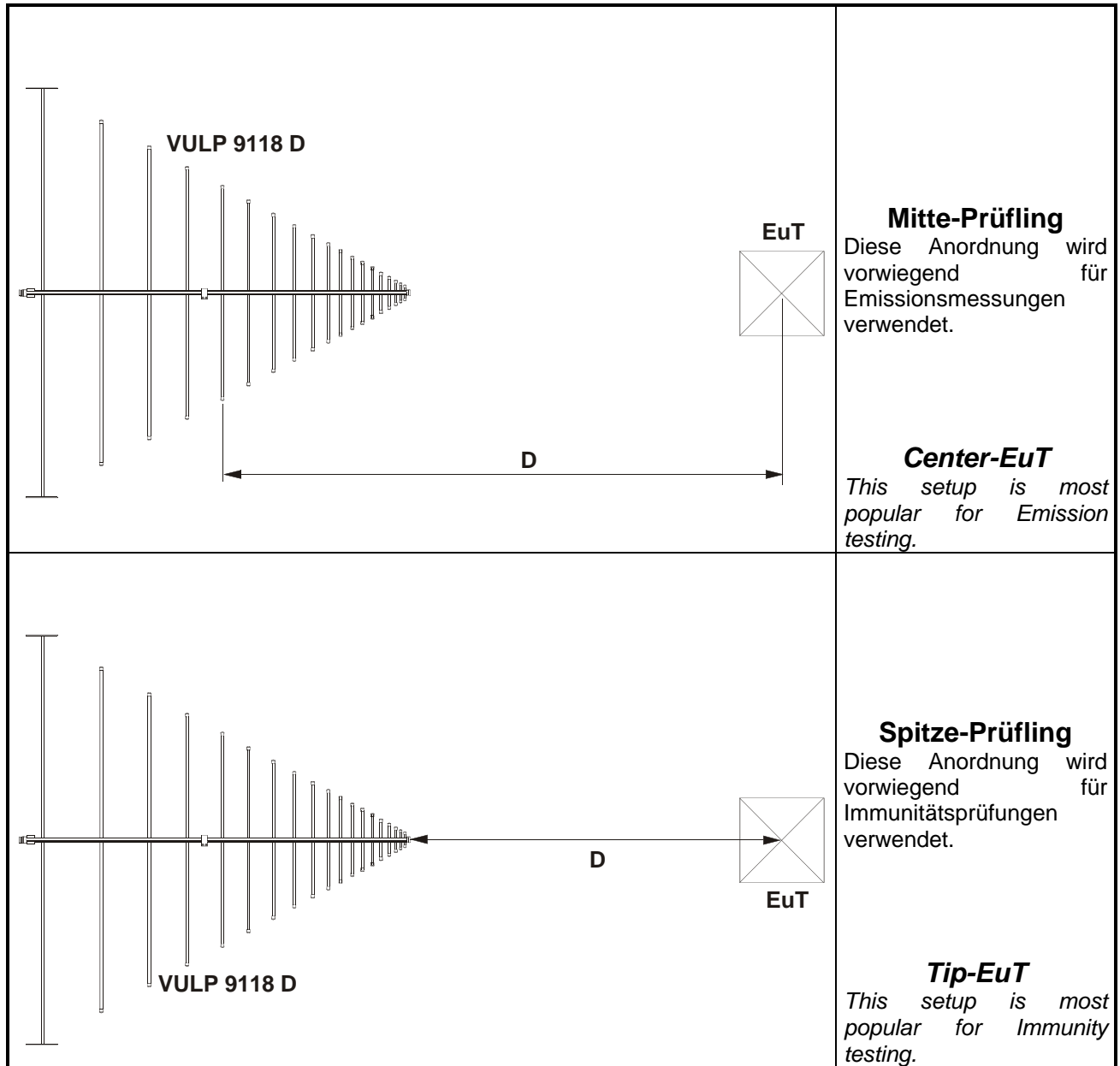
Erzeugte Elektrische Feldstärke vor der Antennenspitze
unmoduliert, Eingangsleistung an N-Buchse, Reflexionsfreie Umgebung
Generated Electrical Fieldstrength in front of Antenna Tip
no modulation, Input Power at N-Connector, Anechoic Environmental Conditions



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VULP 9118 D Korrektur für kurze Messentfernung (Skizze der Bezugspunkte) Correction for short Measuring Distance (Sketch of Reference Points)



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VULP 9118 D Kalibrierdaten (Fernfeld und 1, 3, 10 m Spitze-Prüfling) VULP 9118 D Calibration Data (Farfield and 1, 3, 10 m Tip-EuT)

Frequency	Gain(Iso.)	Ant.-Fact k	gi (10 m)	k (10m)	gi (3m)	k (3m)	gi (1m)	k (1m)
Frequenz	Gewinn	Ant.Faktor	gi (10 m)	k (10m)	gi (3m)	k (3m)	gi (1m)	k (1m)
MHz	dBi	dB/m	dBi	dB/m	dBi	dB/m	dBi	dB/m
65.0	2.03	4.45	0.82	5.66	-1.49	7.97	-5.93	12.41
70.0	2.78	4.35	1.57	5.56	-0.74	7.86	-5.18	12.30
75.0	2.21	5.51	1.00	6.73	-1.31	9.03	-5.75	13.47
80.0	2.36	5.92	1.15	7.14	-1.16	9.44	-5.60	13.88
85.0	3.30	5.51	2.09	6.72	-0.22	9.03	-4.66	13.47
90.0	4.41	4.90	3.20	6.11	0.89	8.42	-3.55	12.85
95.0	5.08	4.69	3.93	5.85	1.71	8.06	-2.60	12.37
100.0	5.66	4.56	4.56	5.66	2.44	7.78	-1.74	11.96
110.0	6.22	4.83	5.22	5.83	3.26	7.79	-0.71	11.75
120.0	6.17	5.63	5.25	6.55	3.43	8.38	-0.34	12.14
130.0	6.31	6.19	5.46	7.04	3.76	8.74	0.18	12.32
140.0	6.50	6.64	5.71	7.43	4.11	9.03	0.70	12.44
150.0	6.57	7.17	5.83	7.91	4.32	9.42	1.06	12.68
160.0	6.72	7.59	6.03	8.27	4.61	9.69	1.49	12.81
170.0	6.91	7.92	6.26	8.57	4.91	9.91	1.93	12.90
180.0	6.95	8.38	6.34	8.99	5.06	10.27	2.19	13.14
190.0	6.97	8.82	6.39	9.40	5.17	10.62	2.41	13.38
200.0	6.91	9.33	6.36	9.88	5.19	11.05	2.53	13.71
220.0	6.77	10.30	6.27	10.80	5.21	11.86	2.74	14.33
240.0	6.85	10.97	6.39	11.43	5.41	12.41	3.10	14.72
260.0	6.86	11.65	6.44	12.08	5.53	12.99	3.37	15.15
280.0	6.73	12.43	6.34	12.82	5.50	13.66	3.47	15.69
300.0	6.71	13.05	6.35	13.41	5.56	14.20	3.63	16.13
325.0	6.56	13.90	6.23	14.23	5.50	14.96	3.70	16.76
350.0	6.81	14.29	6.51	14.59	5.84	15.26	4.17	16.93
375.0	6.74	14.96	6.46	15.24	5.83	15.87	4.26	17.44
400.0	6.62	15.64	6.35	15.91	5.77	16.50	4.27	17.99
425.0	6.62	16.16	6.38	16.41	5.83	16.96	4.44	18.35
450.0	6.73	16.55	6.50	16.79	5.98	17.30	4.65	18.63
475.0	6.89	16.87	6.67	17.08	6.18	17.57	4.92	18.84
500.0	6.68	17.52	6.47	17.73	6.01	18.19	4.81	19.39
550.0	6.65	18.38	6.47	18.56	6.05	18.98	4.96	20.07
600.0	6.61	19.18	6.45	19.34	6.08	19.71	5.10	20.68
650.0	6.81	19.67	6.66	19.82	6.32	20.16	5.41	21.07
700.0	6.48	20.65	6.34	20.78	6.03	21.09	5.19	21.93
750.0	6.77	20.95	6.64	21.08	6.36	21.36	5.59	22.13
800.0	6.38	21.90	6.26	22.02	6.00	22.28	5.28	23.00
850.0	6.55	22.25	6.44	22.37	6.20	22.61	5.53	23.28
900.0	6.48	22.82	6.38	22.92	6.15	23.15	5.53	23.77
950.0	6.18	23.60	6.09	23.69	5.88	23.89	5.31	24.46
1000.0	6.55	23.67	6.46	23.76	6.27	23.95	5.72	24.50
Bezugs- punkt:	Strahl- ungszone	Strahl- ungszone	Spitze der Log. - Per. Struktur					
Reference Point:	Radiating Zone	Radiating Zone	Tip of Log. - Per. Structure					

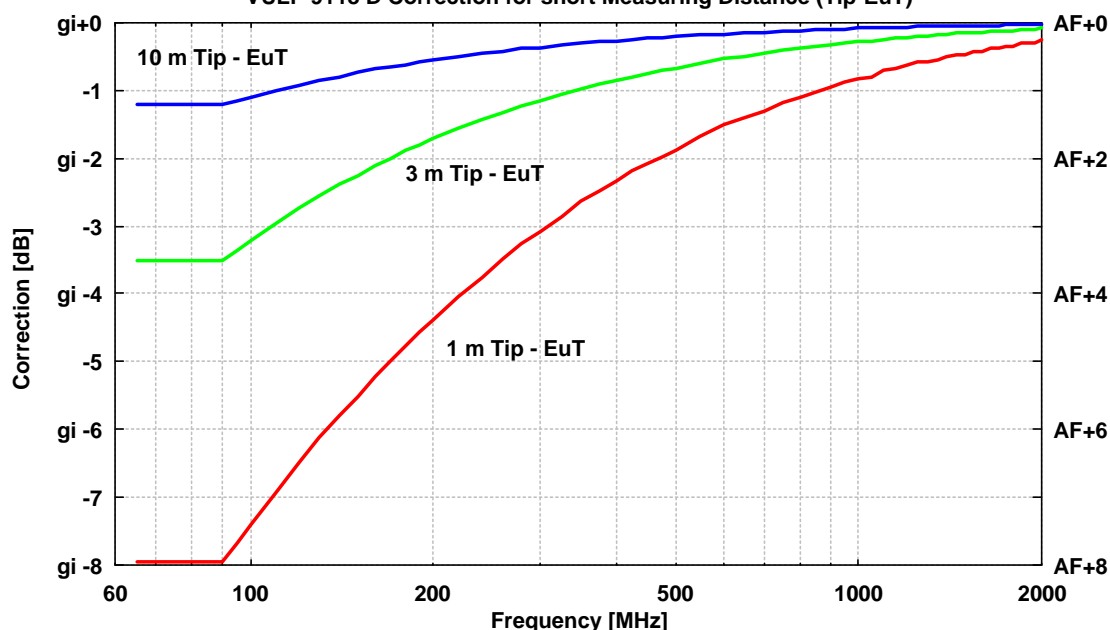
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An der Klinge 29 D-69250 Schönau Tel.: 06228/1001 Fax.: (49)6228/1003

VULP 9118 D Kalibrierdaten (Fernfeld und 1, 3, 10 m Spitze-Prüfling) VULP 9118 D Calibration Data (Farfield and 1, 3, 10 m Tip-EuT)

Frequency	Gain(Iso.)	Ant.-Fact k	gi (10 m)	k (10m)	gi (3m)	k (3m)	gi (1m)	k (1m)
Frequenz	Gewinn	Ant.Faktor	gi (10 m)	k (10m)	gi (3m)	k (3m)	gi (1m)	k (1m)
MHz	dBi	dB/m	dBi	dB/m	dBi	dB/m	dBi	dB/m
1000.0	6.55	23.67	6.46	23.76	6.27	23.95	5.72	24.50
1050.0	6.50	24.14	6.42	24.23	6.23	24.41	5.71	24.93
1100.0	6.23	24.82	6.16	24.89	5.99	25.06	5.52	25.53
1150.0	5.95	25.48	5.88	25.55	5.72	25.71	5.28	26.15
1200.0	6.18	25.63	6.12	25.69	5.97	25.84	5.55	26.25
1250.0	6.15	26.01	6.09	26.07	5.95	26.21	5.56	26.60
1300.0	5.96	26.54	5.90	26.60	5.76	26.74	5.37	27.13
1350.0	5.36	27.46	5.30	27.52	5.17	27.65	4.81	28.01
1400.0	5.32	27.82	5.27	27.87	5.15	27.99	4.81	28.33
1450.0	5.59	27.86	5.54	27.91	5.43	28.02	5.12	28.32
1500.0	5.54	28.20	5.49	28.25	5.38	28.36	5.07	28.67
1550.0	4.96	29.06	4.92	29.11	4.82	29.21	4.54	29.49
1600.0	3.90	30.40	3.86	30.45	3.76	30.55	3.48	30.83
1650.0	3.29	31.28	3.25	31.32	3.16	31.41	2.91	31.66
1700.0	2.79	32.04	2.75	32.08	2.66	32.17	2.41	32.42
1750.0	3.20	31.88	3.17	31.92	3.08	32.00	2.86	32.22
1800.0	4.07	31.26	4.04	31.29	3.95	31.37	3.73	31.60
1850.0	4.27	31.30	4.24	31.32	4.17	31.39	3.97	31.59
1900.0	3.67	32.13	3.64	32.16	3.57	32.23	3.37	32.42
1950.0	2.55	33.47	2.52	33.50	2.45	33.57	2.25	33.77
2000.0	1.11	35.13	1.08	35.16	1.02	35.22	0.85	35.39
Bezugs- punkt:	Strahl- ungszone	Strahl- ungszone	Spitze der Log. - Per. Struktur					
Reference Point:	Radiating Zone	Radiating Zone	Tip of Log. - Per. Structure					

VULP 9118 D Korrektur für kurze Messentfernung (Bezugspunkt: Spitze)
VULP 9118 D Correction for short Measuring Distance (Tip-EuT)



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VULP 9118 D Kalibrierdaten (Fernfeld und 3, 10 m Mitte-Prüfling) VULP 9118 D Calibration Data (Farfield and 3, 10 m Center-EuT)

Frequency	Gain(Iso.)	Ant.-Fact k	gi (10 m)	k (10m)	gi (3m)	k (3m)	gi (1m)	k (1m)
Frequenz	Gewinn	Ant.Faktor	gi (10 m)	k (10m)	gi (3m)	k (3m)	gi (1m)	k (1m)
MHz	dBi	dB/m	dBi	dB/m	dBi	dB/m	dBi	dB/m
65.0	2.03	4.45	1.40	5.08	0.09	6.39	-2.83	9.31
70.0	2.78	4.35	2.15	4.97	0.84	6.28	-2.08	9.20
75.0	2.21	5.51	1.58	6.14	0.27	7.45	-2.65	10.37
80.0	2.36	5.92	1.73	6.55	0.42	7.86	-2.50	10.78
85.0	3.30	5.51	2.67	6.14	1.36	7.45	-1.56	10.37
90.0	4.41	4.90	3.78	5.52	2.47	6.83	-0.45	9.76
95.0	5.08	4.69	4.52	5.26	3.33	6.45	0.63	9.15
100.0	5.66	4.56	5.16	5.06	4.09	6.13	1.60	8.62
110.0	6.22	4.83	5.82	5.23	4.96	6.09	2.87	8.17
120.0	6.17	5.63	5.86	5.95	5.17	6.63	3.47	8.34
130.0	6.31	6.19	6.07	6.42	5.55	6.95	4.20	8.30
140.0	6.50	6.64	6.33	6.81	5.94	7.20	4.92	8.23
150.0	6.57	7.17	6.45	7.29	6.19	7.55	5.47	8.27
160.0	6.72	7.59	6.66	7.65	6.51	7.80	6.09	8.21
170.0	6.91	7.92	6.89	7.94	6.84	7.99	6.70	8.13
180.0	6.95	8.38	6.97	8.36	7.01	8.32	7.13	8.20
190.0	6.97	8.82	7.02	8.77	7.15	8.65	7.51	8.29
200.0	6.91	9.33	6.99	9.25	7.19	9.05	7.78	8.46
220.0	6.77	10.30	6.91	10.16	7.25	9.82	8.28	8.78
240.0	6.85	10.97	7.03	10.79	7.48	10.34	8.90	8.93
260.0	6.86	11.65	7.08	11.44	7.63	10.89	9.42	9.10
280.0	6.73	12.43	6.99	12.17	7.63	11.53	9.77	9.40
300.0	6.71	13.05	7.00	12.77	7.71	12.06	10.12	9.64
325.0	6.56	13.90	6.88	13.58	7.67	12.79	10.44	10.02
350.0	6.81	14.29	7.16	13.94	8.04	13.07	11.17	9.93
375.0	6.74	14.96	7.11	14.59	8.05	13.65	11.47	10.23
400.0	6.62	15.64	7.01	15.25	8.00	14.26	11.66	10.60
425.0	6.62	16.16	7.03	15.75	8.08	14.70	12.05	10.73
450.0	6.73	16.55	7.16	16.13	8.24	15.04	12.41	10.87
475.0	6.89	16.87	7.33	16.42	8.46	15.30	12.82	10.93
500.0	6.68	17.52	7.13	17.06	8.30	15.90	12.88	11.32
550.0	6.65	18.38	7.13	17.90	8.36	16.67	13.30	11.73
600.0	6.61	19.18	7.11	18.67	8.40	17.38	13.74	12.04
650.0	6.81	19.67	7.32	19.15	8.66	17.82	14.24	12.24
700.0	6.48	20.65	7.01	20.11	8.38	18.74	14.22	12.90
750.0	6.77	20.95	7.31	20.41	8.73	18.99	14.84	12.88
800.0	6.38	21.90	6.93	21.35	8.37	19.91	14.67	13.61
850.0	6.55	22.25	7.11	21.70	8.58	20.23	15.07	13.74
900.0	6.48	22.82	7.05	22.26	8.55	20.76	15.23	14.07
950.0	6.18	23.60	6.76	23.02	8.28	21.49	15.18	14.60
1000.0	6.55	23.67	7.13	23.09	8.67	21.55	15.67	14.55
Bezugs- punkt:	Strahl- ungszone	Strahl- ungszone	Mitte der Log. - Per. Struktur					
Reference Point:	Radiating Zone	Radiating Zone	Center of Log. - Per. Structure					

SCHWARZBECK MESS - ELEKTRONIK

An der Klinge 29 D-69250 Schönau Tel.: 06228/1001 Fax.: (49)6228/1003

VULP 9118 D Kalibrierdaten (Fernfeld und 3, 10 m Mitte-Prüfling) VULP 9118 D Calibration Data (Farfield and 3, 10 m Center-EuT)

Frequency	Gain(Iso.)	Ant.-Fact k	gi (10 m)	k (10m)	gi (3m)	k (3m)	gi (1m)	k (1m)
Frequenz	Gewinn	Ant.Faktor	gi (10 m)	k (10m)	gi (3m)	k (3m)	gi (1m)	k (1m)
MHz	dBi	dB/m	dBi	dB/m	dBi	dB/m	dBi	dB/m
1000.0	6.55	23.67	7.13	23.09	8.67	21.55	15.67	14.55
1050.0	6.50	24.14	7.09	23.56	8.64	22.00	15.74	14.90
1100.0	6.23	24.82	6.83	24.22	8.41	22.64	15.73	15.32
1150.0	5.95	25.48	6.55	24.88	8.15	23.29	15.58	15.85
1200.0	6.18	25.63	6.79	25.02	8.39	23.41	15.94	15.86
1250.0	6.15	26.01	6.76	25.40	8.38	23.78	16.05	16.11
1300.0	5.96	26.54	6.57	25.93	8.19	24.31	15.86	16.64
1350.0	5.36	27.46	5.98	26.85	7.61	25.22	15.39	17.43
1400.0	5.32	27.82	5.94	27.20	7.59	25.55	15.49	17.65
1450.0	5.59	27.86	6.22	27.23	7.88	25.57	15.90	17.54
1500.0	5.54	28.20	6.17	27.58	7.83	25.91	15.85	17.89
1550.0	4.96	29.06	5.59	28.44	7.27	26.76	15.42	18.61
1600.0	3.90	30.40	4.53	29.77	6.21	28.09	14.36	19.94
1650.0	3.29	31.28	3.93	30.64	5.62	28.95	13.89	20.68
1700.0	2.79	32.04	3.43	31.40	5.12	29.71	13.39	21.44
1750.0	3.20	31.88	3.84	31.24	5.55	29.54	13.95	21.13
1800.0	4.07	31.26	4.71	30.62	6.42	28.91	14.82	20.50
1850.0	4.27	31.30	4.91	30.65	6.63	28.93	15.17	20.39
1900.0	3.67	32.13	4.31	31.48	6.03	29.76	14.57	21.22
1950.0	2.55	33.47	3.19	32.83	4.91	31.11	13.45	22.57
2000.0	1.11	35.13	1.76	34.48	3.49	32.75	12.17	24.07
Bezugspunkt:	Strahlungszone	Strahlungszone	Mitte der Log. - Per. Struktur					
Reference Point:	Radiating Zone	Radiating Zone	Center of Log. - Per. Structure					

VULP 9118 D Korrektur für kurze Messentfernung (Bezugspunkt: Mitte) VULP 9118 D Correction for short Measuring Distance (Center-EuT)

