

**Passive Magnetische Sende-Rahmenantenne**  
**Passive Magnetic TX Loop Antenna**



**Beschreibung:**

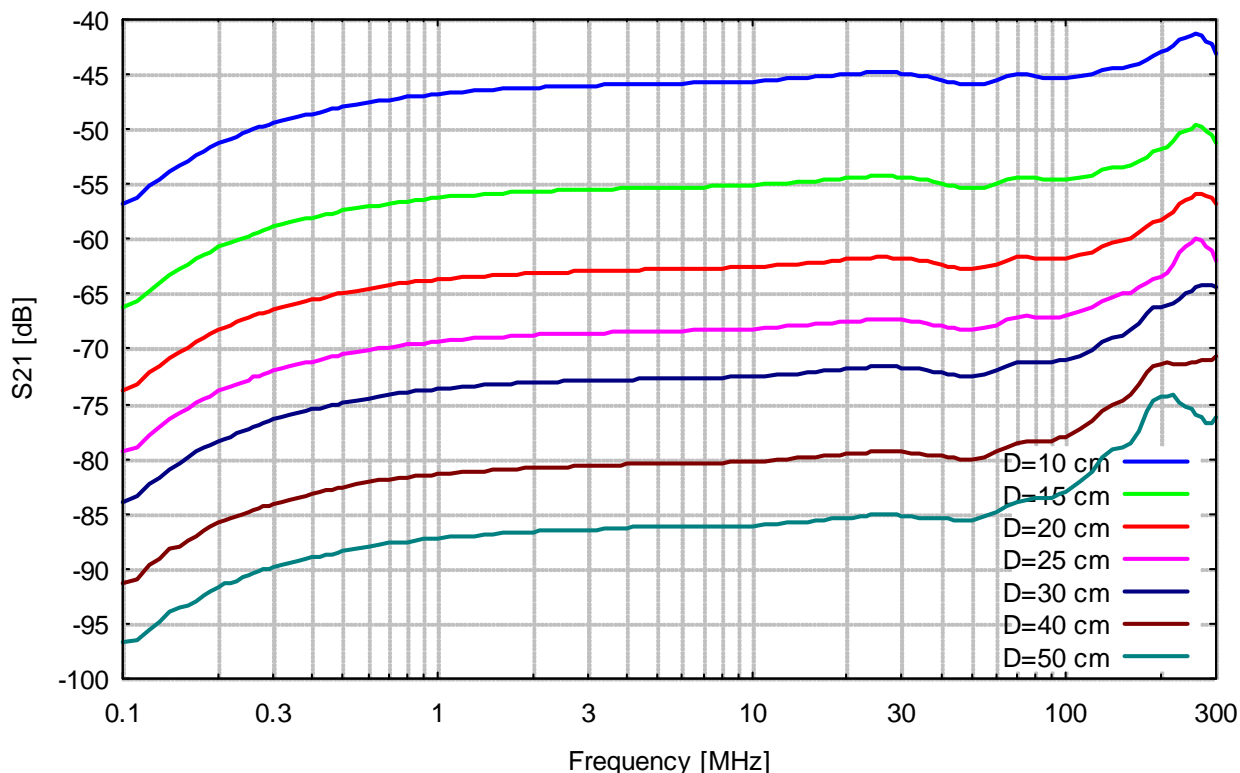
Die Ringantenne für magnetische Felder ist zur Erzeugung von kleinen bis mittleren Magnetfeldstärken im Frequenzbereich 100 kHz - 300 MHz einsetzbar. Sie besteht aus einer einzigen, geschirmten Windung mit einem Durchmesser von 50 mm. Die Glättung des Frequenzgangs wird durch Verwendung eines Breitband-Übertragers erreicht. Die HFRA 5155 ist mit zwei BNC-Buchsen ausgestattet, eine Buchse (Input) dient zur Einspeisung mittels 50  $\Omega$  Generator bzw. Leistungsverstärker, die zweite (Monitor) kann zur Kontrolle des Rahmenstroms unter Verwendung eines hochohmigen Tastkopfs verwendet werden. Die Kontrolle des Rahmenstroms kann durch Messung des Spannungsabfalls am eingebauten 10  $\Omega$  Widerstand erfolgen und ist bis etwa 30 MHz anwendbar. Im allgemeinen, aber insbesondere bei höheren Frequenzen und hohem Genauigkeitsanspruch empfiehlt sich eine Kontrolle der erzeugten Feldstärke mit der aktiven Magnetfeldsonde HFS 1546.

**Description:**

The Loop Antenna for magnetic fields was designed to create small to medium magnetic fields in the frequency range from 100 kHz to 300 MHz. The HFRA 5155 consists of a shielded single turn loop of 50 mm diameter. The flat frequency response is achieved using a wideband transformer. The HFRA 5155 is equipped with two BNC-connectors, one (Input) is to feed the loop with a 50  $\Omega$  signal generator or a power amplifier, the other one (Monitor) can be used to monitor the loop current by measuring the voltage drop across the built-in 10  $\Omega$  resistor. The monitoring output requires a high impedance voltage probe (e.g. from an oscilloscope or a voltmeter) and is usable up to 30 MHz. In general, but especially with high accuracy requirements and at high frequencies it is recommended to monitor the generated field strength using the active magnetic field probe HFS 1546.

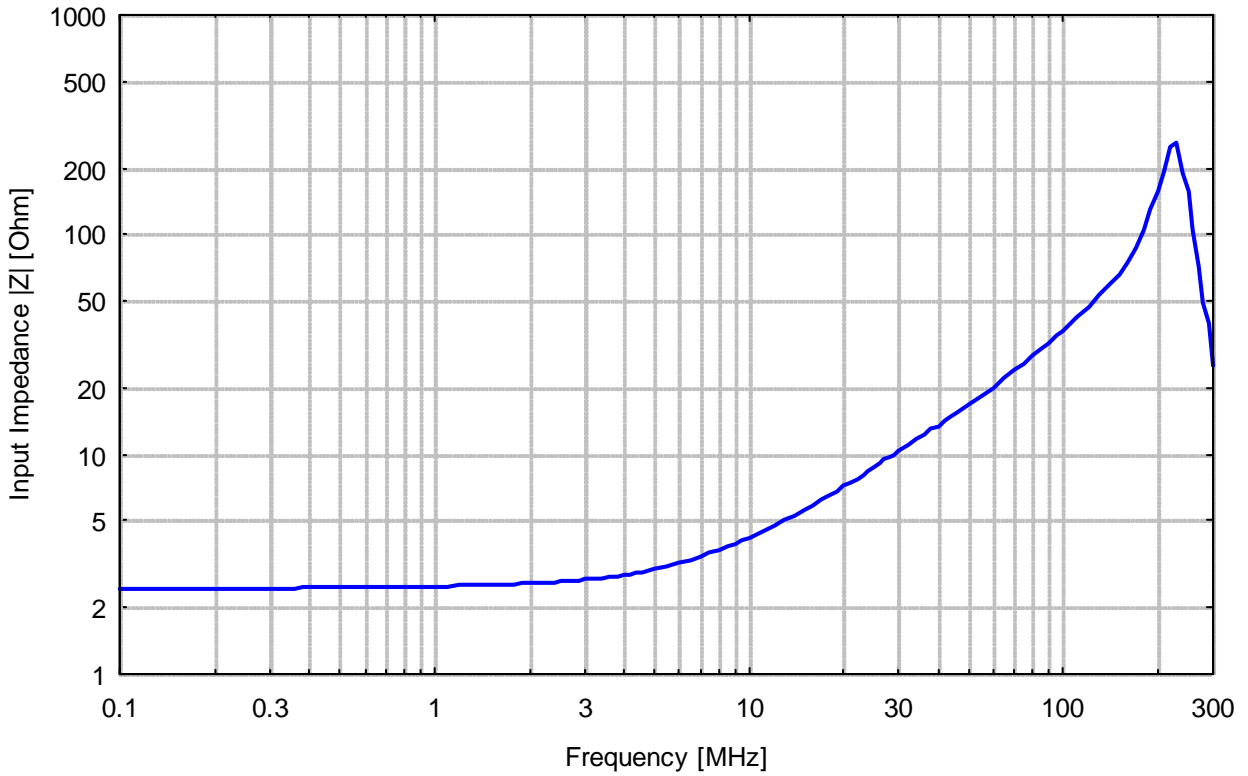
Technische Daten:		Specifications:
Frequenzbereich:	100 kHz ... 100 (300) MHz	Frequency Range:
Rahmendurchmesser:	50 mm	Loop Diameter:
Anschluss:	BNC	Connector:
Max. Eingangsleistung:	2 W	Max. Input Power:
Impedanz der Signalgeneratoren bzw. Leistungsverstärker:	50 $\Omega$	Impedance of Signal Generator or Power Amplifier:
Impedanz der hochohmigen Tastköpfe zur Stromkontrolle am 10 $\Omega$ Monitorausgang:	> 10 k $\Omega$	Impedance of Voltage Probes connected to 10 $\Omega$ Monitor Output:
Maximaler Rahmenstrom:	0.44 A	Maximum Loop Current:
Maximalspannung am Monitorausgang:	4.4 V	Maximum Monitor Voltage:
Montage (Stativgewinde):	3/8"	Mount (Camera Thread):
Material: Messing, vernickelt		Material: Brass, Nickel plated
Abmessungen:	105 x 60 x 62 mm	Dimensions:
Gewicht:	145 g	Weight:

Transmission between HFRA 5155 and HFS 1546

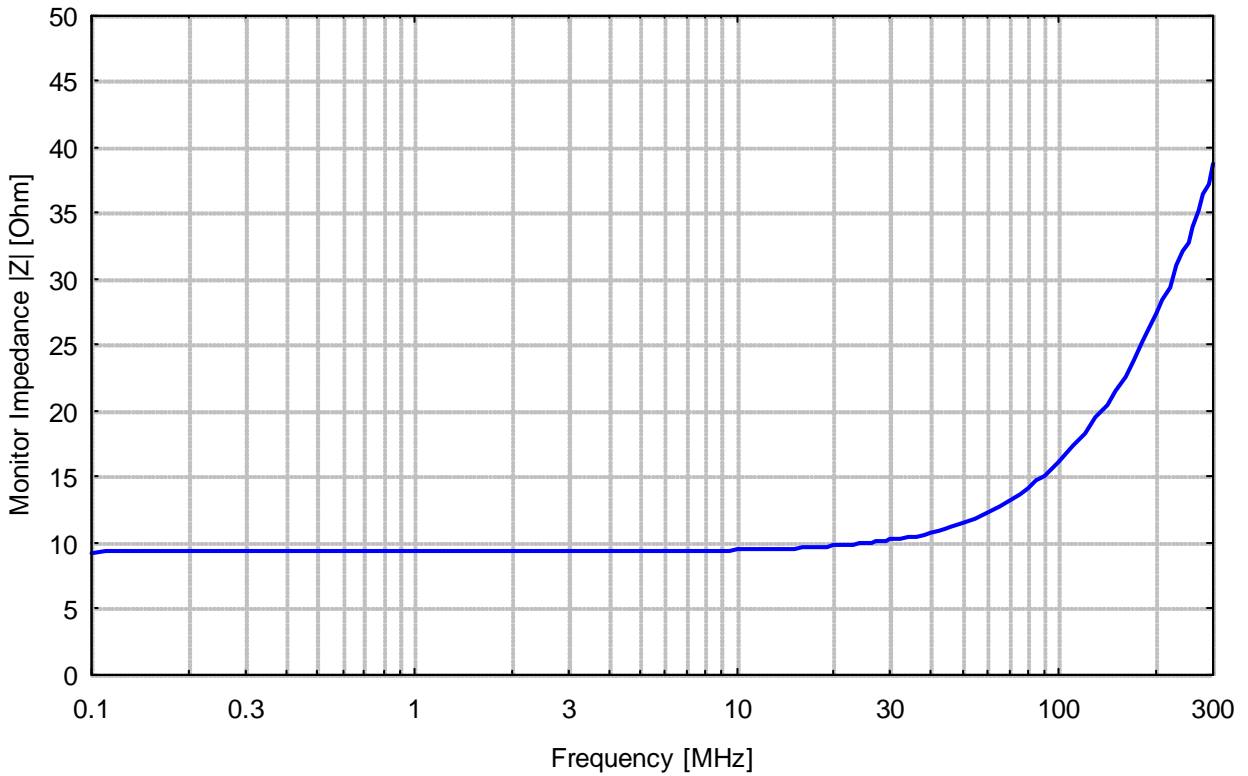


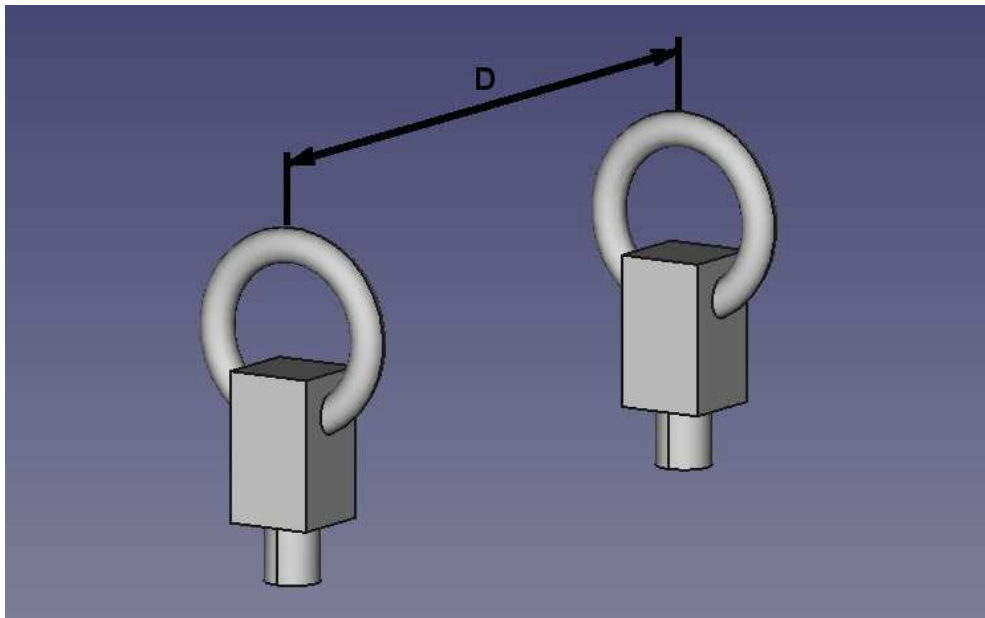
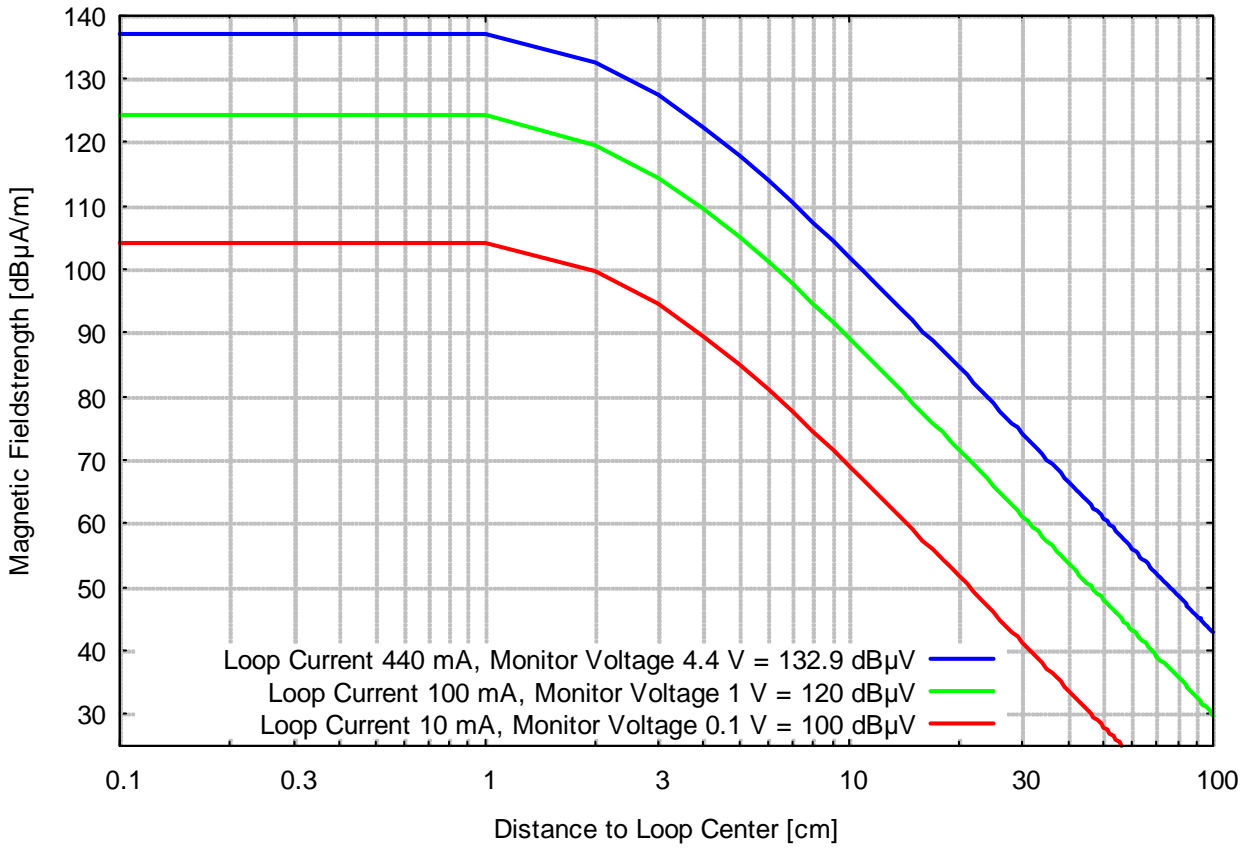


Input Impedance at Feed Connector



Impedance at Monitor Connector







Abstand D <i>Distance D</i>	Magnetic Field- strength H(100mA)	Magnetic Fieldstrength H <sub>max</sub> (440 mA)	Relative Mag- netic Field- strength H <sub>rel</sub>
cm	dB $\mu$ A/m	dB $\mu$ A/m	dB <sub>rel</sub>
0.0	126.02	138.89	0.00
1.0	124.09	136.96	-1.93
2.0	119.58	132.44	-6.45
3.0	114.40	127.27	-11.62
4.0	109.48	122.35	-16.54
5.0	105.05	117.92	-20.97
6.0	101.12	113.99	-24.90
7.0	97.63	110.50	-28.39
8.0	94.50	107.37	-31.52
9.0	91.67	104.54	-34.35
10.0	89.11	101.98	-36.91
11.0	86.76	99.63	-39.26
12.0	84.59	97.46	-41.43
13.0	82.59	95.46	-43.43
14.0	80.72	93.59	-45.30
15.0	78.97	91.84	-47.05
16.0	77.34	90.20	-48.69
17.0	75.79	88.66	-50.23
18.0	74.33	87.20	-51.69
19.0	72.95	85.82	-53.07
20.0	71.63	84.50	-54.39
21.0	70.38	83.25	-55.64
22.0	69.18	82.05	-56.84
23.0	68.04	80.91	-57.98
24.0	66.94	79.81	-59.08
25.0	65.89	78.76	-60.13
26.0	64.88	77.75	-61.14
27.0	63.90	76.77	-62.12
28.0	62.96	75.83	-63.06
29.0	62.06	74.93	-63.96
30.0	61.18	74.05	-64.84
31.0	60.33	73.20	-65.69
32.0	59.51	72.38	-66.51
33.0	58.71	71.58	-67.31
34.0	57.94	70.81	-68.08
35.0	57.19	70.06	-68.83
36.0	56.46	69.33	-69.56
37.0	55.75	68.61	-70.28
38.0	55.05	67.92	-70.97
39.0	54.38	67.25	-71.64
40.0	53.72	66.59	-72.30
41.0	53.08	65.95	-72.94
42.0	52.46	65.33	-73.56
43.0	51.84	64.71	-74.18
44.0	51.25	64.12	-74.77
45.0	50.66	63.53	-75.36
46.0	50.09	62.96	-75.93
47.0	49.53	62.40	-76.49
48.0	48.99	61.86	-77.03
49.0	48.45	61.32	-77.57
50.0	47.93	60.80	-78.09



Abstand D <i>Distance D</i>	Magnetic Field- strength H(100mA)	Magnetic Fieldstrength H <sub>max</sub> (440 mA)	Relative Mag- netic Field- strength H <sub>rel</sub>
cm	dB $\mu$ A/m	dB $\mu$ A/m	dB <sub>rel</sub>
51.0	47.41	60.28	-78.61
52.0	46.91	59.78	-79.11
53.0	46.41	59.28	-79.61
54.0	45.93	58.79	-80.10
55.0	45.45	58.32	-80.57
56.0	44.98	57.85	-81.04
57.0	44.52	57.39	-81.50
58.0	44.07	56.94	-81.95
59.0	43.62	56.49	-82.40
60.0	43.19	56.05	-82.84
61.0	42.76	55.62	-83.27
62.0	42.33	55.20	-83.69
63.0	41.92	54.79	-84.10
64.0	41.51	54.38	-84.51
65.0	41.10	53.97	-84.92
66.0	40.71	53.57	-85.31
67.0	40.31	53.18	-85.71
68.0	39.93	52.80	-86.09
69.0	39.55	52.42	-86.47
70.0	39.17	52.04	-86.85
71.0	38.81	51.67	-87.22
72.0	38.44	51.31	-87.58
73.0	38.08	50.95	-87.94
74.0	37.73	50.60	-88.29
75.0	37.38	50.25	-88.64
76.0	37.03	49.90	-88.99
77.0	36.69	49.56	-89.33
78.0	36.36	49.23	-89.66
79.0	36.03	48.90	-89.99
80.0	35.70	48.57	-90.32
81.0	35.38	48.24	-90.65
82.0	35.06	47.93	-90.96
83.0	34.74	47.61	-91.28
84.0	34.43	47.30	-91.59
85.0	34.12	46.99	-91.90
86.0	33.82	46.69	-92.20
87.0	33.52	46.38	-92.51
88.0	33.22	46.09	-92.80
89.0	32.92	45.79	-93.10
90.0	32.63	45.50	-93.39
91.0	32.34	45.21	-93.68
92.0	32.06	44.93	-93.96
93.0	31.78	44.65	-94.24
94.0	31.50	44.37	-94.52
95.0	31.22	44.09	-94.80
96.0	30.95	43.82	-95.07
97.0	30.68	43.55	-95.34
98.0	30.41	43.28	-95.61
99.0	30.15	43.02	-95.87
100.0	29.89	42.76	-96.13

