



Antenna Factor for 100 Series EMC Probes

Terry Noe, Beehive Electronics

Introduction

The tables below show the antenna factors for the Beehive Electronics 100 A/B/C/D. This data is identical to the graphical data that is also shown on the website.

Magnetic Field Probes

For the 100 A/B/C magnetic field probes, antenna factor is defined as:

$$\text{Antenna Factor} = H_{inc}/V_{out}$$

A load impedance of 50 ohms is assumed. In the tables below, this is given in decibels: in other words:

$$AF_{dB} = 20 * \log_{10}\left(\frac{H_{inc}}{V_{out}}\right)$$

The units of antenna factor are amperes per meter per volt, or A/(V*m).

Electric Field Probe

For the 100 D electric field probe, antenna factor is defined as:

$$\text{Antenna Factor} = E_{inc}/V_{out}$$

A load impedance of 50 ohms is assumed. In the tables below, this is given in decibels: in other words:

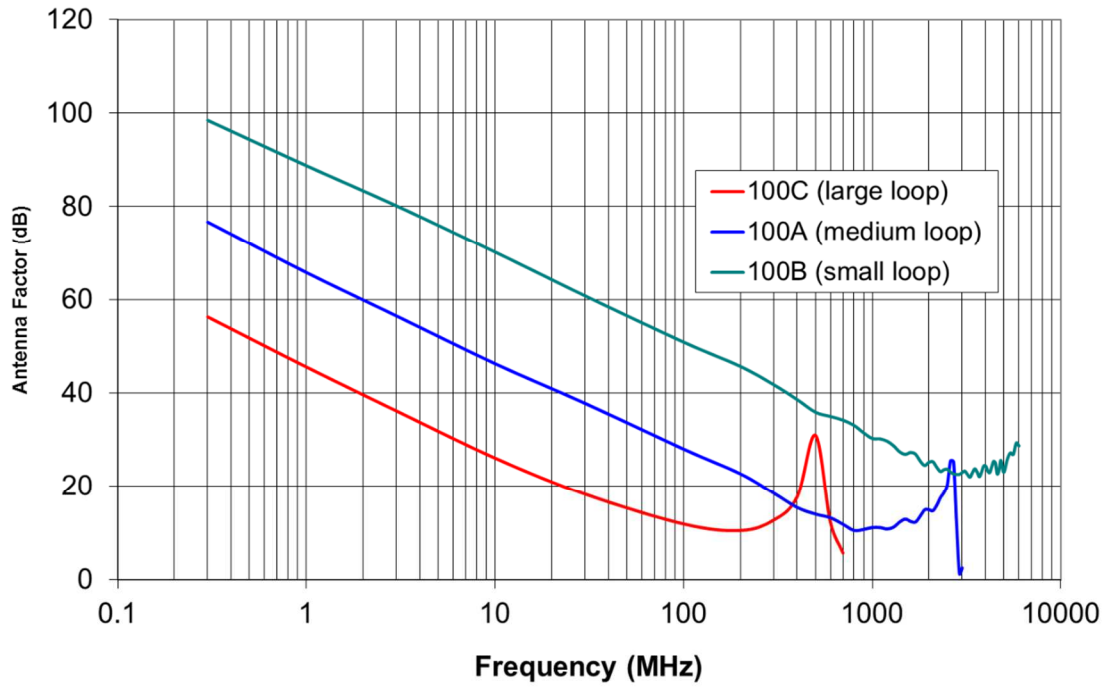
$$AF_{dB} = 20 * \log_{10}\left(\frac{E_{inc}}{V_{out}}\right)$$

The units of antenna factor are inverse meters, or 1/m.

100 A/B/C Magnetic Field Probes

Frequency MHz	Antenna Factor dB(A/(V*m))		
	100B	100A	100C
0.3	98.47	76.67	56.25
1	88.77	65.77	45.55
3	80.17	56.47	36.15
10	70.17	46.27	26.05
30	60.77	37.77	18.25
100	50.87	27.97	11.85
200	45.67	22.67	10.45
300	41.77	18.47	12.65
400	38.57	15.37	17.65
500	35.87	13.97	30.95
600	34.97	13.17	12.25
700	34.17	11.77	5.65
800	33.07	10.47	
900	31.47	10.67	
1000	30.27	11.07	
1100	30.17	11.07	
1200	29.67	10.77	
1300	28.67	11.17	
1400	27.37	12.27	
1500	26.87	12.87	
1600	27.27	12.37	
1700	26.87	12.27	
1800	25.37	13.57	
1900	24.47	14.87	
2000	25.17	14.87	
2100	25.27	14.67	
2200	24.07	15.87	
2300	23.17	17.47	
2400	23.57	18.57	
2500	23.67	20.27	
2600	23.07	25.47	
2700	22.67	25.27	
2800	22.57	11.97	
2900	22.57	1.27	
3000	22.97	2.47	
3100	23.27		
3200	22.57		
3300	21.97		
3400	22.97		
3500	23.77		
3600	23.07		
3700	22.07		
3800	23.07		
3900	24.37		
4000	24.37		
4100	23.27		
4200	22.97		
4300	24.17		
4400	25.37		
4500	24.97		
4600	22.67		
4700	23.37		
4800	25.57		
4900	24.17		
5000	23.07		
5200	25.77		
5400	27.17		
5600	26.87		
5800	29.27		
6000	28.67		

**Beehive Electronics
Magnetic Field Probe
Antenna Factor vs. Frequency
Hin/Vout**



100D Electric Field Probe

Frequency MHz	Antenna Factor dB/m
0.3	132.87
1	126.17
3	114.37
10	103.67
30	94.47
100	83.77
200	76.67
300	73.47
400	72.47
500	71.17
600	68.97
700	66.97
800	65.87
900	65.17
1000	64.67
1100	63.87
1200	62.47
1300	61.97
1400	61.97
1500	61.87
1600	61.27
1700	60.07
1800	59.67
1900	60.27
2000	60.17
2100	59.47
2200	58.97
2300	59.07
2400	59.17
2500	59.17
2600	58.97
2700	58.07
2800	57.57
2900	57.77
3000	57.47
3200	56.57
3400	55.67
3600	56.67
3800	54.77
4000	56.37
4200	54.37
4400	55.07
4600	54.07
4800	52.37
5000	52.87
5200	50.47
5400	51.27
5600	49.57
5800	49.37
6000	49.07
6200	48.77
6400	49.07
6600	48.97
6800	49.27
7000	50.07
7200	49.37
7400	50.67
7600	50.27
7800	52.97
8000	51.17
8200	54.07
8400	53.37
8600	54.57
8800	55.17
9000	54.37

**Beehive Electronics
100D Electric Field Probe
Antenna Factor vs. Frequency
Ein/Vout**

