Auswertung

Ergebnisse

Gesamtwiderstand $R_g = (84.6 \pm 0.09)\,3\text{ohm}$

Impedanz Z_S
$(1.3423 \pm 0.0026)\,1000\text{ohm}$
$(0.652 \pm 0.0009)\,1000\text{ohm}$
$(0.3771 \pm 0.0005)\,1000\text{ohm}$
$(0.24341 \pm 0.00029)\,1000\text{ohm}$
$(0.14142 \pm 0.00017)\,1000\text{ohm}$
$(0.10777 \pm 0.00013)\,1000\text{ohm}$
$(0.0966 \pm 0.00012)\,1000\text{ohm}$
$(0.09158 \pm 0.00011)\,1000\text{ohm}$
$(0.09319 \pm 0.00012)\,1000\text{ohm}$
$(0.10095 \pm 0.00012)\,1000\text{ohm}$
$(0.12525 \pm 0.00015)\,1000\text{ohm}$
$(0.19383 \pm 0.00023)\,1000\text{ohm}$
$(0.3072 \pm 0.0004)\,1000\text{ohm}$
$(0.4422 \pm 0.0006)\,1000\text{ohm}$
$(0.6044 \pm 0.0008)\,1000\text{ohm}$
$(0.7586 \pm 0.0011)\,1000\text{ohm}$
$(0.9364 \pm 0.0015)\,1000\text{ohm}$

Impedanz Z_I	quadrierte Kreisfrequenz ww	quadrierte Impedanz zz
$(168.88 \pm 0.17)\,\text{ohm}$	$(142100.0 \pm 2400.0)\,4\text{Hz}^2\pi^2$	$(28520.0 \pm 60.0)\,\text{ohm}^2$
$(258.19 \pm 0.27)\,\text{ohm}$	$(395000.0 \pm 4000.0)\,4\text{Hz}^2\pi^2$	$(66660.0 \pm 140.0)\,\text{ohm}^2$
$(351.6 \pm 0.4)\,\text{ohm}$	$(774000.0 \pm 6000.0)\,4\text{Hz}^2\pi^2$	$(123630.0 \pm 260.0)\,\text{ohm}^2$
$(446.9 \pm 0.5)\,\text{ohm}$	$(1279000.0 \pm 8000.0)\,4\text{Hz}^2\pi^2$	$(199700.0 \pm 500.0)\,\text{ohm}^2$
$(543.4 \pm 0.7)\,\text{ohm}$	$(1911000.0 \pm 9000.0)\,4\text{Hz}^2\pi^2$	$(295300.0 \pm 700.0)\,\text{ohm}^2$
$(641.2 \pm 0.8)\,\text{ohm}$	$(2669000.0 \pm 11000.0)\,4\text{Hz}^2\pi^2$	$(411200.0 \pm 1000.0)\,\text{ohm}^2$
$(737.8 \pm 0.9)\,\text{ohm}$	$(3553000.0 \pm 12000.0)\,4\text{Hz}^2\pi^2$	$(544300.0 \pm 1400.0)\,\text{ohm}^2$
$(836.6 \pm 1.1)\,\text{ohm}$	$(4564000.0 \pm 14000.0)\,4\text{Hz}^2\pi^2$	$(699900.0 \pm 1800.0)\,\text{ohm}^2$
$(934.2 \pm 1.3)\,\text{ohm}$	$(5701000.0 \pm 16000.0)\,4\text{Hz}^2\pi^2$	$(872700.0 \pm 2400.0)\,\text{ohm}^2$
$(1032.4 \pm 1.5)\,\text{ohm}$	$(6964000.0 \pm 17000.0)\,4\text{Hz}^2\pi^2$	$(1066000.0 \pm 4000.0)\,\text{ohm}^2$
$(1133.3 \pm 1.7)\,\text{ohm}$	$(8354000.0 \pm 19000.0)\,4\text{Hz}^2\pi^2$	$(1284000.0 \pm 4000.0)\,\text{ohm}^2$

$$m = (1.4944 \pm 0.0024)\,1$$

$$b = (6950.0 \pm 110.0)\,1$$

Fehlerformeln

$$\sigma_{R_g} = \sqrt{{\sigma_{RA}}^2 + {\sigma_{RS}}^2 + {\sigma_{Ro}}^2}$$

$$\sigma_{Z_I} = \sqrt{\frac{{\sigma_{UI}}^2}{{I_I}^2} + \frac{{U_I}^2}{{I_I}^4}{\sigma_{II}}^2}$$

$$\sigma_{Z_S} = \sqrt{\frac{{\sigma_{US}}^2}{{I_S}^2} + \frac{{U_S}^2}{{I_S}^4}{\sigma_{IS}}^2}$$

$$\sigma_{ww} = 8\pi^2 \sigma_{fI} \sqrt{{f_I}^2}$$

$$\sigma_{zz} = 2\sigma_{ZI} \sqrt{{Z_I}^2}$$