

Corrigenda to Publications

Publication I, page 3, line 31

It is not correct to say that because of the skin-effect phenomenon, the eddy currents are more concentrated on the outer radius of the sample. Instead, in cylindrical sample the induced eddy currents are stronger on the outer radius of the sample, because $E_{\text{int}} = \omega Br/2$ gets stronger with the larger radius r . Skin effect, in turn, deals with how electric current flows near the outer surface of a solid electrical conductor, such as a metal wire.

Publication I, page 5, Eq. 5

The voltage change in the output voltage of the voltage divider, produced by the change in loss resistance, can be written in simpler form as

$$\Delta V \approx -\frac{V_0}{4} \frac{\Delta R_{\text{loss}}}{R_{\text{loss}}} = -\frac{V_0}{4} \frac{Q}{\omega L} \Delta R_{\text{loss}}.$$

Although being simpler, the above equation is also more accurate approximation of

$$\Delta V = \frac{V_0}{2} \frac{\Delta Z}{2Z + \Delta Z},$$

where Z is the impedance of the unloaded coil (also equal to load and source impedances of the voltage divider) and ΔZ is the change in the coil impedance when loaded. However, the improvement in accuracy has only minor effect to the reported range of observed loss resistance (page 11, line 20). With the new equation the range is 0.4–5.7 m Ω instead of 0.4–5.6 m Ω .

Publication II, page 4, Eq. 2

$m_{\text{loss,max}}$ and $m_{\text{loss,min}}$, which were not defined, are given by

$$m_{\text{loss,max}} = \frac{\bar{v}_H + \sigma_H - (\bar{v}_L - \sigma_L)}{f_H - f_L}$$
$$m_{\text{loss,min}} = \frac{\bar{v}_H - \sigma_H - (\bar{v}_L + \sigma_L)}{f_H - f_L},$$

where \bar{v}_H and \bar{v}_L are the mean values of the measured voltage changes at f_H and f_L , respectively.

Publication III, page 4, Fig. 2

The direction of the time varying magnetic field \mathbf{B} should be into the paper instead of out of the paper. Furthermore, it would be more correct to say that it is the magnitude of dB/dt , that is directed into the paper. After this correction the direction of the eddy currents shown in the Figure oppose the applied field \mathbf{B} , as it should be.

Publication V, page 200, Fig. 2

OP should be OPA, so that OP140 becomes OPA140, and OP137 becomes OPA137.