

FORCE EQUALS ELECTRIC CURRENT SQUARED

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A current of 0.392 A is required to flow through 0.008 kg of 0.5m conductor placed 90 degrees to the magnetic field, B , of strength 0.40 T for a levitation effect. [This is *conventional* understanding]

Let us consider current generated by the magnetic field, B , of 0.4 T on 0.5m length of the conductor.

Experimental evidence by way of a levitation experiment:

Current induced in a wire by an external magnetic field,

$$I = 0.4 \text{ T} \times 0.5 \text{ m} = 0.2 \text{ A}$$

Current passed through the same wire,

$$I = 0.392 \text{ A}$$

$$0.0784 \text{ A}^2 = 0.392 \text{ A} \times 0.2 \text{ A}$$

$F = m g$ [weight] or Newton's force where the mass of the wire is 8 grams or 0.008 Kg and 9.8 m/s² earth's acceleration or gravity, g

$$F = 0.008 \text{ kg} \times \frac{9.8 \text{ N}}{\text{kg}} = 0.0784 \text{ N}$$

$$0.0784 \text{ N} = 0.392 \text{ A} \times 0.2 \text{ A}$$

$$\text{N} = \text{A}^2$$

FORCE IN NEWTONS EQUALS CURRENT SQUARED