

The magnitude of the magnetic field on the axis of a circular current loop is given by Eq. 2. If a coil carrying current magnetic field is measured as a function of distance, this process is called magnetic mapping. Search coil is a small area coil of closely spaced number of turns, N and area, A . If such coil is inserted in a space of varying magnetic field, an induced emf is produced. is parallel to A , and A is constant, faraday's equation becomes; $\text{emf} = -N \cdot A \cdot \frac{dB}{dt}$ If the rate of change of B is known, the magnetic field, B , can be measured by measuring the induced emf. The field has its largest value in the plane of the loop and decreases as the distance z increases. where $\mu = \mu_0 \mu_r$