

Moving charge create a magnetic field - lab report example

[Science](#), [Physics](#)



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Introduction When the electric charges are in motion, they normally create a magnetic field. The magnetic field is normally measured in Tesla. The magnetic field created in turn exerts a force on the moving electric charges which is given by:

Since the electric current consists of moving charges, the magnetic field can also exert a force on a current and for a straight wire with length L carrying current I , the magnitude of the force that is exerted by the magnetic field B is given by:

Currents can be used to create a magnetic field and the magnetic field for a solenoid with N number of turns carrying current has a magnitude given by the formula.

The direction of moving charges is given by the right hand rule and therefore force is given by the formula:

The concept above can be proved using the values obtained from the experiment

Conclusion

From the lab experiment carried out above, the objectives have been met and the values of the maximum amplitude in the coil determined to be 5.99 volts. The peak to peak measurement of the emf was found to be 6 volts.

The closed loop coil is found to generate the maximum transfer of electromagnetic force while the open air core gives the least amount of emf. This proves that the amount of emf generated is dependent on the number of coils. The results obtained prove that any change in the magnetic flux will

result into creation of a voltage in the coil hence this means that faradays law holds.