

**APPLIED PHYSICS LAB**

**Lab Report: To Study Angle of Dip by Earth Inductor**

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**INTRODUCTION & BACKGROUND**

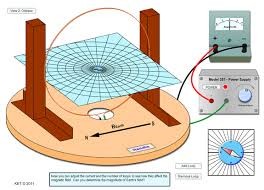
The earth inductor is a coil that is rotated through 180-deg through the earth's magnetic ﬁeld. The voltage induced voltage is measured as a function of time, the area under the curve is calculated. This can be used to calculate the magnetic ﬁeld. The coil can be positioned to measure the horizontal, vertical or total magnetic ﬁeld B.

**APPARATUS:**

1. Earth Inductor
2. Ballistic Galvanometer
3. Compass Needles
4. Magnetic

**PROCEDURE:**

Following procedure is followed;

1. First of all, I made the connections as shown in the ﬁgure.
2. The I pressed the key to damp the galvanometer.
3. Then I took the Resistance out from H.R.B.
4. Then I placed the Earth inductor vertically with earth’s lines of force and gave it a shift.
5. The galvanometer showed the vertical shift reading.
6. Then again, I placed the Earth inductor Horizontal with earth’s lines of force in order to take ballistic galvanometer readings.
7. Hv and Hh give angle of dip by the formula,

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**READINGS:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.No. | Horizontal Shift, Hv | Vertical Shift, Hv |  | ) |
| 1 | 39 | 31 | 1.258 | 51.518º |
| 2 | 37 | 30 | 1.233 | 50.956º |
| 3 | 39 | 32 | 1.218 | 50.613º |
| 4 | 38 | 30 | 1.266 | 51.695º |
| 5 | 38 | 31 | 1.225 | 50.774º |
| 6 | 39 | 32 | 1.218 | 50.613º |
| 7 | 38 | 32 | 1.187 | 49.887º |
| 8 | 38 | 30 | 1.266 | 51.695º |

**AVERAGE READING:**

**PRECAUTIONS:**

Following precautions should be taken for this analytical experiment:

1. Earth inductor should be rotated a full 180 degrees for exact and accurate measuring.
2. Connections should be snug and rust free.
3. Ballistic galvanometer should be calibrated ﬁrst.
4. Key should be placed in contact after each reading for calibrating again.