

Date of Lab _____

Date of Submission 5-06-2019

Laboratory Report

Title Oscilloscope

Homeroom <u>12-0</u>	Section	Name <u>Nagisa Shionoya</u>
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Lab Partners Kyoko Hatta

Summary

In this lab, we use the oscilloscope to find V_{rms} and frequency. Because oscilloscope can make the wave motionless, we can know the V_{max} and period of the wave. Therefore, we can get V_{rms} and frequency, and both experimental values are almost same as theoretical values. From this lab, I deepen my understanding about the relationship of P and f , and V_{rms} and V_{max} .

- Meet a deadline
- Write logically
- Write clearly
- Write with your own words

Teacher's Comments

1	2	3	4	5	6	7	8	9
Due	Summary	Intro.	Method.	Results	Table/Fig.	Discussion	Clearness	General

- * Use this form as a cover sheet.
- * Submit your reports by the seventh day after your lab.

Results

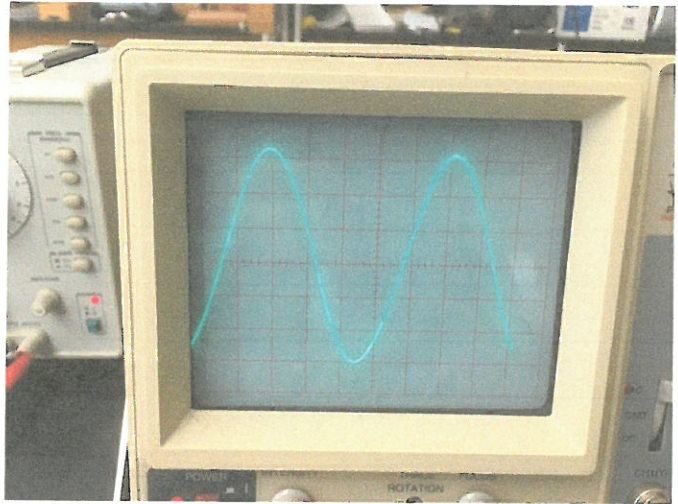
<Experiment 1>

Setting : $f = 20 \times 10 \text{ Hz}$

Data :

Period T [ms]	5.200
Frequency f [Hz] $f = 1/T$	192.3
Vmax [V]	15.50
Vrms [V]	10.96

% Error for frequency :
 $(200-192.308)/200 \times 100 = 3.85\%$



<Experiment 2>

Setting : $L = 100 \text{ mH}$

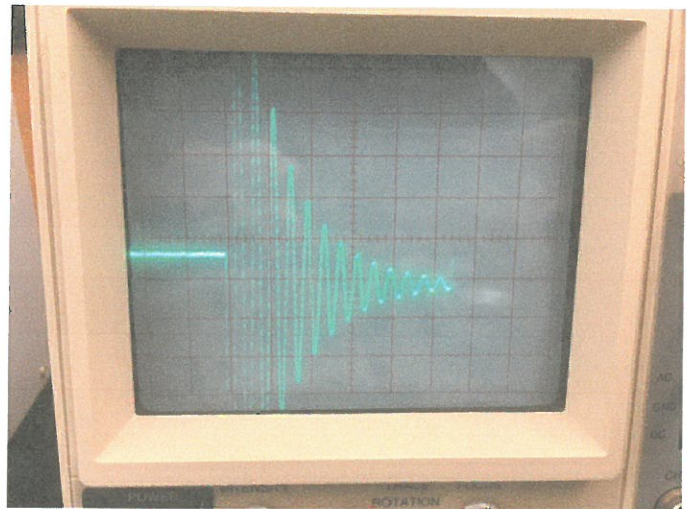
$C = 0.01 \mu\text{F}$

$$f = \frac{1}{2\pi\sqrt{LC}}$$
$$= 5032.9 \text{ Hz}$$

Data :

Period T [ms]	0.2
Frequency f [Hz]	5000

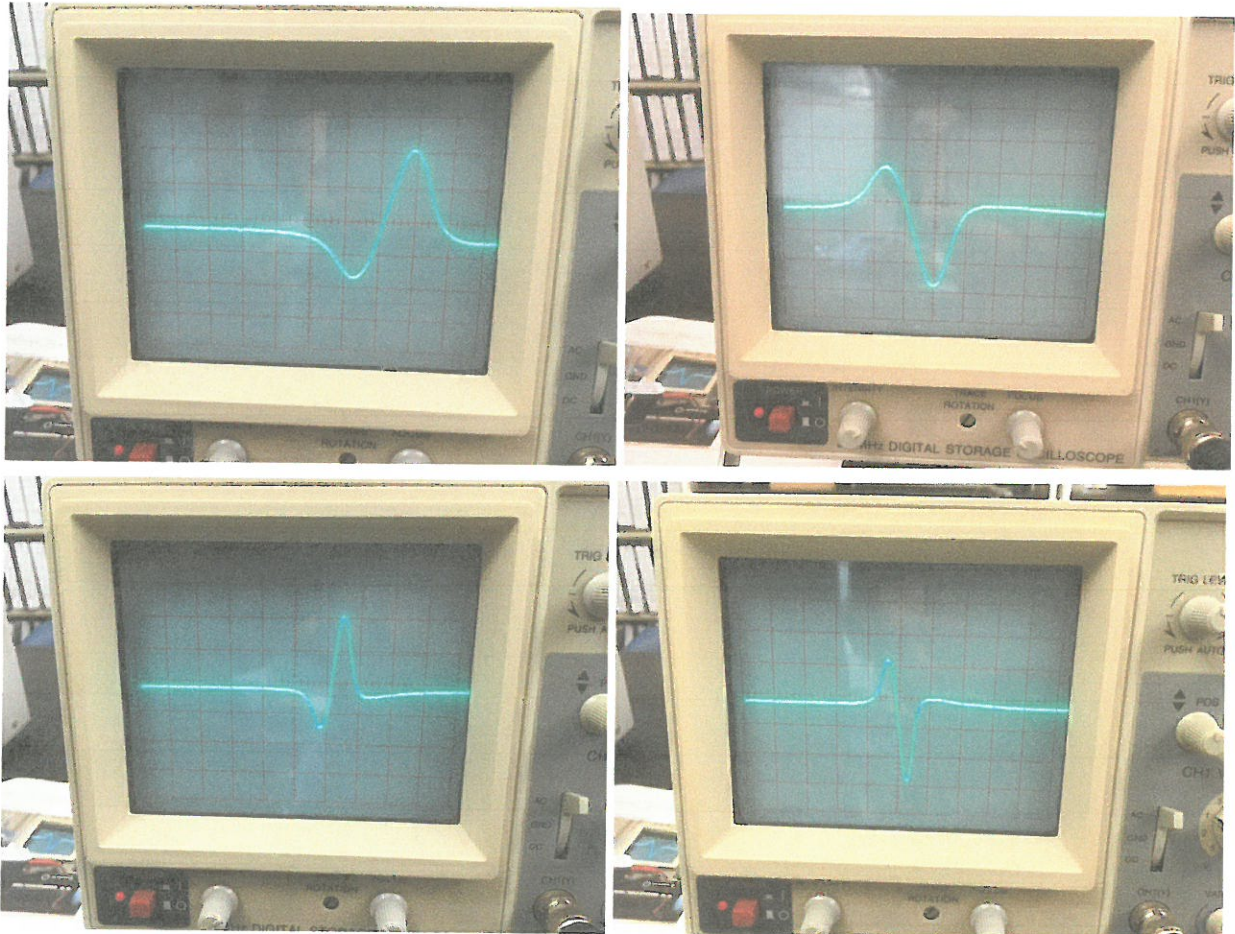
% Error for frequency :
 $(5032.9-5000)/5032.9 \times 100 = 0.654\%$



<Experiment 3>

Setting : 4 magnets

Data : $2V_{max} = 4.1 \text{ V}$



Discussion

In the experiment 1, we set the frequency $20 \times 10 \text{ Hz}$. From the wave which we get, the experimental frequency is 192.3. The percentage error is 3.85%, which is acceptable.

In the experiment 2, theoretical frequency is 5032.9 Hz, and experimental frequency is 5000 Hz.

$$f = \frac{1}{2\pi \sqrt{LC}}$$

The percentage error was 0.654%, so is accepted.

In the experiment 3, the waveforms differ by the direction of the magnet because magnet has N and S pole which produce magnetic field.

Atki