Supplemental Information
Standing Waves

1. Required Data

(a) Table 1 - White String

<table>
<thead>
<tr>
<th>Mass m</th>
<th>Tension $T = mg$</th>
<th>Wavelength $\lambda$</th>
<th>$\lambda$ (theory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 masses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) Table 2 - Magnet Wire

<table>
<thead>
<tr>
<th>Mass m</th>
<th>Tension $T = mg$</th>
<th>Wavelength $\lambda$</th>
<th>$\lambda$ (theory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 masses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\lambda \text{ (theory)} = \frac{v}{f} = \frac{1}{f} \sqrt{\frac{T}{\mu}}
\]

where

\[
f = 60 \text{ Hz}
\]

and $\mu = 1.31 \text{ g/m}$ for the thick white string and $\mu = 0.357 \text{ g/m}$ for the magnet wire.

2. Guide Questions

(a) How do your results for the white string compare with theoretical calculations? Calculate % difference.

(b) How do your results for the magnet wire compare with theoretical calculations? Calculate % difference.

(c) How did the wavelength change when you increased the hanging mass?

(d) How do your wavelengths for the white string compare to those of the magnet wire (generally longer? shorter?). Is this expected from theory? Justify.

(e) Comment on possible sources of error.