

Practical 7, Topic 4

Standing waves on a string

Criteria assessed

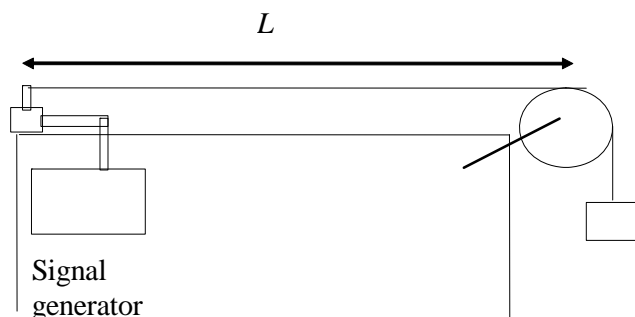
- DCP
- CE

Materials needed

- Signal generator
- String and pulley
- Weights
- Oscillator
- Ruler

What to do

One end of the string is attached to the oscillator. The oscillator is connected to a signal generator. The string goes over a pulley and a weight hangs freely from the end of the string.



Theory says that the wave on a string where the tension is T is given by $v = \sqrt{\frac{T}{\mu}}$ where μ is the mass per unit length of the string.

- Starting with a low frequency, adjust f until a nice standing wave in the fundamental mode is established on the string.
- Measure the wavelength λ by doubling the length L of the string. Therefore $2Lf = \sqrt{\frac{T}{\mu}}$.
- Increase the tension by a fixed amount and then adjust the frequency until the fundamental standing wave is again established on the string.

Results

- What variables must be plotted so that that $2Lf = \sqrt{\frac{T}{\mu}}$ is verified?
- What is your prediction for μ (include unit and uncertainty)?