LIVERPOOL PHYSICS OLYMPICS

2009

Doppler Donkey

Aim Determine the velocity and frequency of the source from the Doppler shift.

Materials You are provided a signal generator and a speaker.

Method Sound waves are produced by a donkey on a carousel moving with constant velocity v. Use your signal generator and speaker to determine the Doppler shift. The frequency a stationary observer hears from a moving source emitting frequency f_0 is

$$f = f_0\left(\frac{u}{u \pm v}\right)$$

Use u = 340 m/s for the speed of sound.

Conditions **You need to find both the original frequency f_0 and the velocity v**

Time Limit 25 minutes

Ranking The ranking order will be determined by the percentage difference between your values and the Actual values.

Team ***Result***

V =	m/s
f_0 =	Hz

Do not write below this line

Rank