PHYSICS - Sound Waves



One-string metallic sonometer

This instrument is composed of a single string, placed over a resonance box and fixed at both ends. The string is laid on an intermediate bridge which can be moved so that the sound reaches different frequencies.

The musical bow (bowstring or string bow) is a simple string musical instrument typical of many South African cultures, but also found in other places in the world.



Vibrant bell

The pendulums oscillate when the bell is hit with the hammer, thus demonstrating that the sound is generated by the bell's vibrations. Height 40 cm.

3002

3031



Acoustic resonance apparatus

3010



Digital phonometer

This instrument is easy-reading and it is particularly indicated for schools. Range: low values: 35 to 100 dB. high values: 65 to 130 dB. Resolution: 0,1 dB. Accuracy: 1,5 dB.

Frequency: 31,5 to 8 kHz. DC/AC output for external voltmeter. With battery.



3034



3008

Kundt's tube

The incident acoustic wave interferes with the reflected one, creating the stationary waves. The polystyrene balls visualizes nodes and bellies, so making wavelength measurement possible. Now, knowing the frequency, you can measure the acoustic waves' speed in the air. The item is supplied with tube, stands and bases, piston and the polystyrene balls spreader. It must be used with a loudspeaker code 3017 and an oscillation generator code 5718 sold separately.



Apparatus to measure acoustic waves' velocity in air

This equipment can measure the speed of sound measuring the displacement Δx between the loudspeaker and microphone to ensure that between the two waves, initially in phase, there is a delay time equal to the period of oscillation T or a multiple of T. The speaker is connected to the function generator that produces a sinusoidal signal of known frequency displayed on channel 1 of the oscilloscope. The output signal from the microphone receiver is instead displayed on the channel 2 of the oscilloscope. Changing the distance between the loudspeaker and microphone the two signals could be initially in phase. In practice, this is possible keeping the speaker fixed and moving the microphone, or vice-versa.

Equipment supplied

1 Bench 50 cm	1 Microphone with amplifier
2 Holders	2 Leads
1 Loudspeaker	2 BNC Leads

Equipment required, not supplied

1 Acoustic signals generator code 5718 1 Double traces oscilloscope code 5195

Using the bench you can measure the distance λ (wave length) at which the delay is a period T. So:

