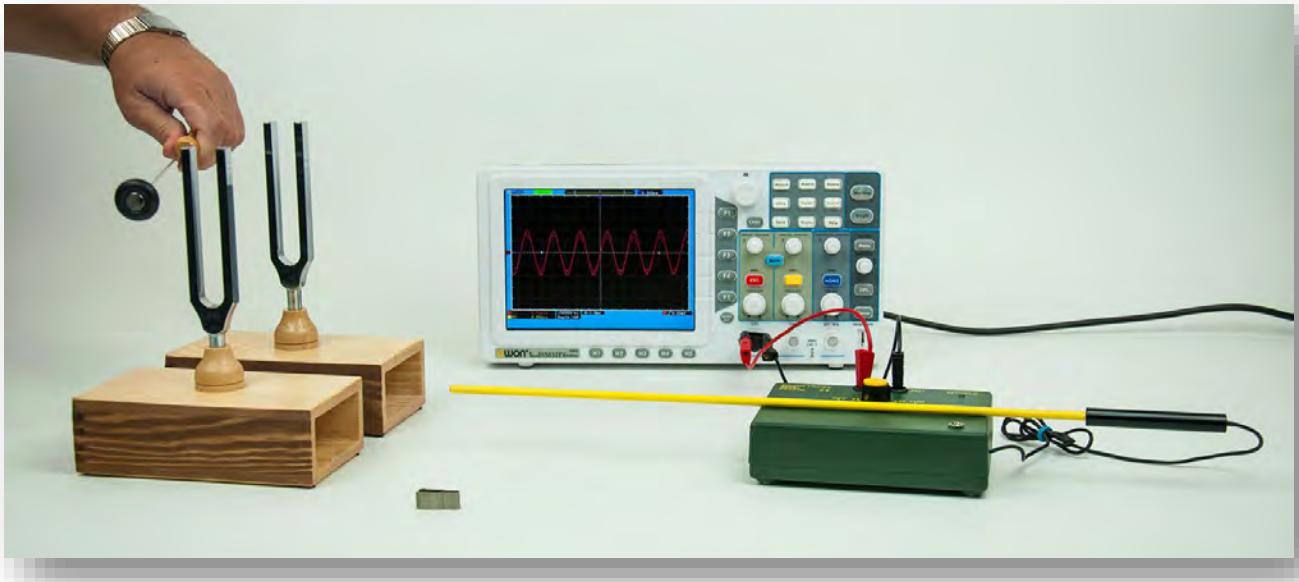
INTERFERENCE – BEAT - I

AKD 06.03



Material:

Item Code	Qty	Description
DE751-3A	1	Oscilloscope, two-channel, 30 MHz, with VGA
DG500-4A	1	BNC to 4-mm socket adapter
DW340-2M	1	Measuring microphone "inno"
DW100-1A	2	Tuning fork, 440 Hz, with resonance box
DW110-1A	1	Tuning fork mallet
DW110-1L	1	Tuning fork rider
	2	Connecting Lead

Additionally recommended:

	1	VGA – Connecting cable
	1	TV or data projector

INTERFERENCE – BEAT - I

AKD 06.03

Goal:

Let's try to study the sound in more detail by recording it.

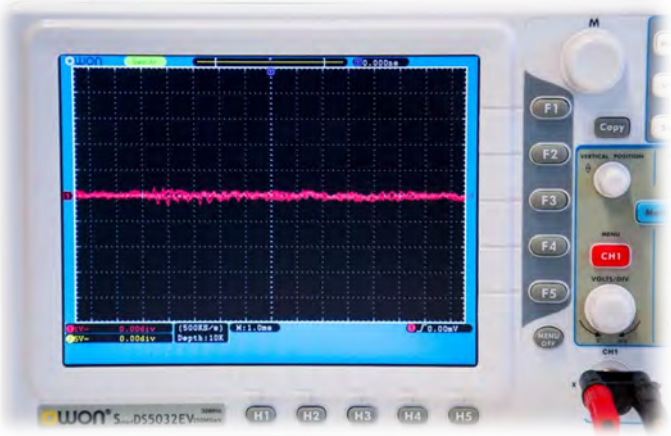
Setup:

The BNC junction is plugged into the socket of channel 1 of the oscilloscope.
The amplifier of the measuring microphone is connected to the oscilloscope with two cables.

Experiment 1:

We switch on the oscilloscope.
We switch the microphone amplifier to "10 x".
The measuring microphone is positioned at a distance of about 10 cm in front of the openings of the resonance boxes.

One of the two tuning forks is struck with the hammer, while we observe the oscilloscope screen.



Result:

With optimal settings on the oscilloscope, we get a nice sine wave. We pay special attention to the height of the waves.

Experiment 2:

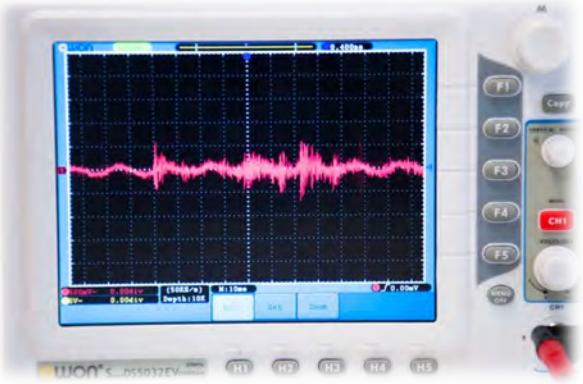
We strike both tuning forks one after the other and compare the height of the waves to the pre-test.

Result:

The waves should now be higher because we have increased the volume slightly. The waveform however remains the same.

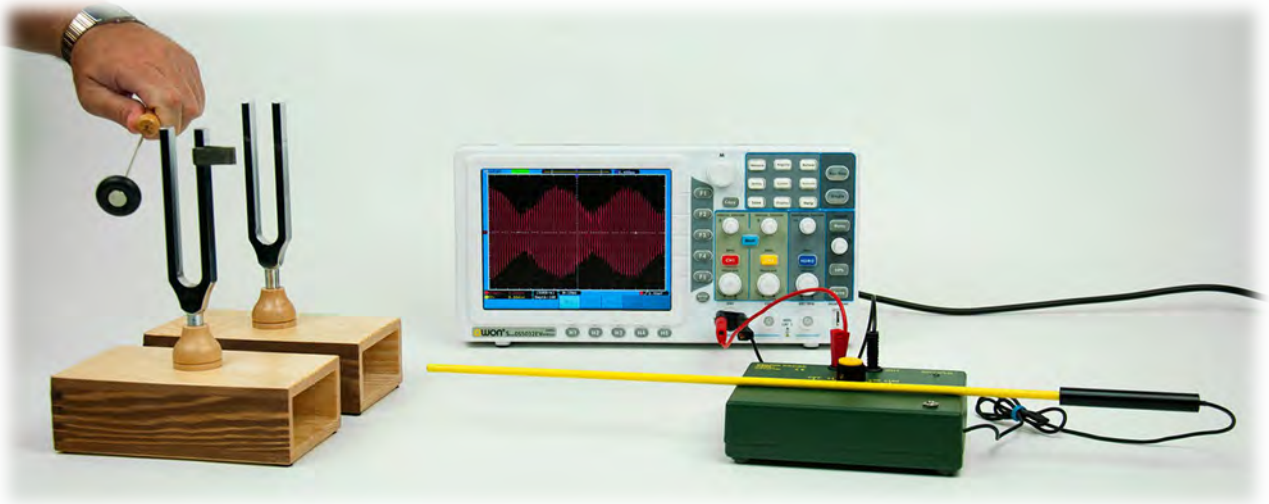
INTERFERENCE – BEAT - I

AKD 06.03



Experiment 3:

We change the settings on the oscilloscope by increasing the time base.
At the upper end of one leg of a tuning fork we clamp the clamp weight.
Again we strike both tuning forks one after the other.



Result:

The tone now produced is no longer homogeneous; the wave is no longer "regular".
Fluctuations in intensity (beatings) occur.

Experiment 4:

We move the tuning fork rider to the middle of the leg and perform the test again.
Then the same test again with the tuning fork rider at the lower end of the leg.

How does the image change on the oscilloscope?

Result:

If the tuning fork rider is attached to the upper end of the leg, the frequency change is greater.
If the tuning fork rider is attached to the beginning of the leg, the frequency change is smaller.