**PAG5.3a Using an oscilloscope to check the calibration of a signal generator**

**Introduction**

In this activity you will be using an oscilloscope to view the output of a signal generator.

You are expected to be able to read off voltage and time data from the trace of the oscilloscope and use your data to assess the accuracy of frequency calibration and the amplitude value of the maximum undistorted sine wave output.

**Aims**

* To be able to use an oscilloscope effectively

**Intended class time**

* 30 to 45 minutes

**Equipment**

* signal generator
* oscilloscope
* leads/probes

**Procedure**

1. Set up the apparatus connecting the output of the signal generator to an input of the oscilloscope. Please note – the high impedance (600 ohm) output of the sig gen is best for this. □
2. Set the signal generator output to the middle of the range that provides a sine wave output of around 50Hz. Note the frequency indicated by the dial or display. □
3. Adjust the settings on the oscilloscope to get a decent trace. Turn up the output/volume knob to obtain the maximum undistorted amplitude value. □
4. Adjust the settings again to obtain a trace that enables you to obtain precise period and amplitude measurements – record the raw data for these (divisions or cm). **Record also the details of the time base and sensitivity settings used.** □
5. Process your data to obtain frequency and amplitude values. □
6. Compare your values for frequency with the notional values given by the signal generator. If your signal generator had a calibrated volume knob, compare these values too. □
7. Repeat the process above for at least two more frequency ranges – around 500 Hz and 5000 Hz. □
8. Write a short report commenting on the accuracy of the calibration of the sig gen and the maximum (undistorted) outputs available for each range chosen. □

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