

Experiment 8: The relationship the angle of incidence and the intensity of reflected light from a glass block.

A manufacturer of camera lenses needs to know precisely how much light is reflected from the surface of a lens in a variety of different lighting conditions. The manufacturer is concerned that the intensity of light reflected from the lens may change if the angle of incidence, i , which the light makes with the surface of the lens changes. See Fig. 3.1.

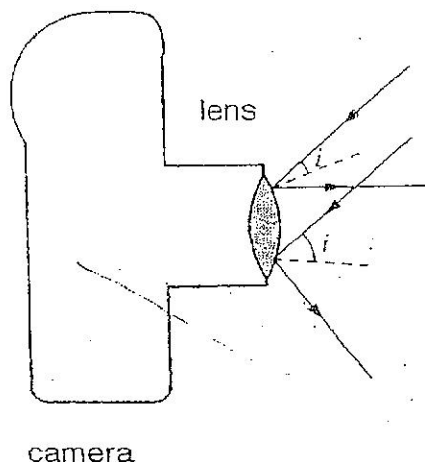


Fig. 3.1

As a first stage the manufacturer decides to investigate reflection of light from a flat glass surface. Design an experiment to investigate how the intensity of reflected light varies with the angle of incidence which the light makes with the plane surface of a sample of glass. You may assume that all of the equipment listed below is available, together with any other standard laboratory apparatus that would be found in a school or college science laboratory.

Ray box with slit and lens
Sodium vapour lamp with power supply
Glass microscope slide
Glass block
Selection of filters
Diffraction grating
Spectrometer
Light-dependent resistor (LDR)
Voltmeter

Selection of lenses
Protractor
Razor blade
Sheets of matt black card
Ammeter
Ohmmeter
Selection of cardboard tubes
Connecting wires
Low voltage power supply unit

You should draw a diagram showing the arrangement of the apparatus you would use and explain how the measurements would be made.