

Week 4

Image formation experiment

Objectives

- to be able measure the grid distance and the focal length
- to be able enhance image resolution at image plane
- to be able to capture image of the object.
- to be able to determine grid clarity and correct grid distortion

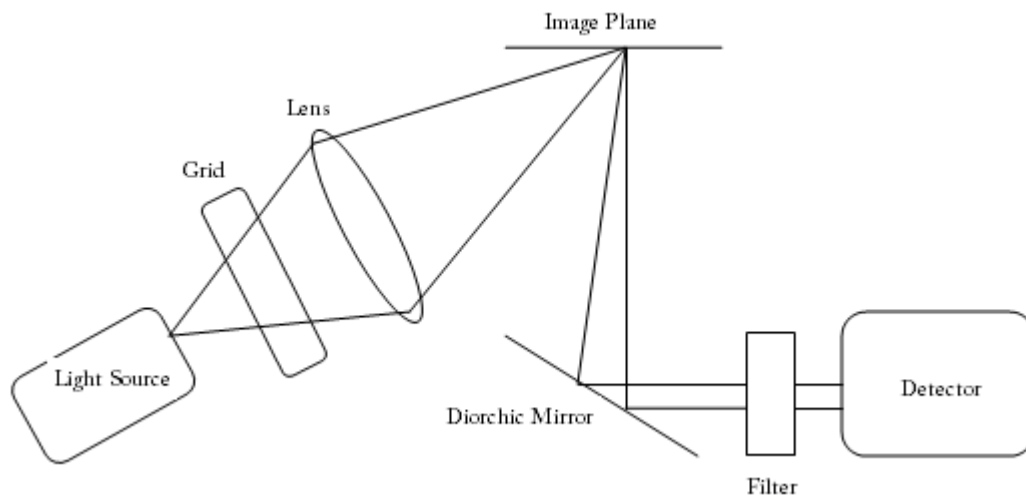
Materials

- Grid or test target
- Lens kits
- Diorchic mirror / Beam splitter
- Light source
- Filters
- Ruler
- Camera
- Others

Procedure

1. Set the grid perpendicular with the light path
2. Place a lens after and parallel to the grid
3. Focus the image at image plane and measure the distance from grid to the lens. (suggest do more than one measurements)
4. Measure the distance from the lens to the image plane.
5. Measure the angle of the grid.
6. Repeat step 1-4 for different lens.
7. Repeat step 1-5 for different filter.
8. Capture the image for all the set up.

Figure 1: Experiment set up sketch.



$$1/f = 1/s + 1/s' \quad (\text{lens equation})$$

Where, s is object distance, s' image distance, f is focal length