

DOF 5-15 DEPTH OF FIELD TARGET

Edmund Optics' Depth of Field Target is designed for two main modes of operation, depending on the viewing angle of the system under test.

NORMAL INCIDENCE

For Normal Incidence, place the target as shown in Figure 1A. The following steps should then be taken:

- 1) Focus on the label on top of the target so that its image is at the top of the field with the inclined plane below. To maximize the accuracy of the reading, an effort should be made to ensure that the focused portion on top of the target represents the uppermost portion of the field depth. To achieve this result, decrease the working distance until the label starts to go out of focus. Go back slightly to just regain focus on top of the target.
- 2) Choose the line pair per millimeter (lp/mm) target column appropriate for your application (i.e., 5 or 15 lp/mm)
- 3) Read the DOF as a function of the chosen resolution from Step 2 and the distance corresponding to the point at which resolution is lost.
- 4) Record the DOF for the system as a depth in mm (from the scale) at a certain lp/mm category. For example, 5.0 mm at 5 lp/mm would be a suitable reading from Figure 1B.

NON-NORMAL INCIDENCE

For Non-Normal Incidence, place the target as shown in Figure 2A. The following steps should then be taken:

- 1) Focus the system so the center of the field of view is focused near the center of the resolving line portion of the target.
- 2) Choose the line pair per millimeter (lp/mm) target column appropriate for your application
- 3) Record the DOF for the system as a depth in mm (from the scale) at a certain lp/mm category. For example, 7.0 mm at 15 lp/mm would be a suitable reading from Figure 2B.
- 4) The depth of field target is designed for at 45° angle, thus the incriminations contact a factor of the $\sqrt{2}$. To adjust for various angle of incidence between that target and lens use the following equation for conversion.

$$DOF' = (\sqrt{2}) * (DOF) * \cos\Theta$$

Where DOF' = the depth of field to be calculated at a given angle.

DOF = Depth of field read from the target

Θ = the angle created between the target and the lens

- 5) Since changing the observation angle would alter this result, it is recommended that you record this data for future reference.

Figure 1A.

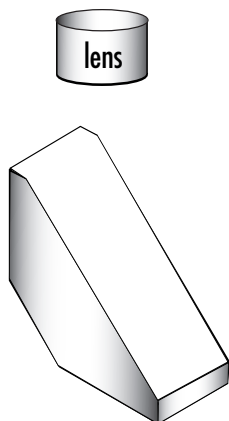


Figure 1B.

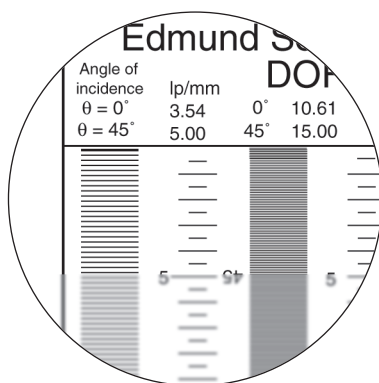


Figure 2A.

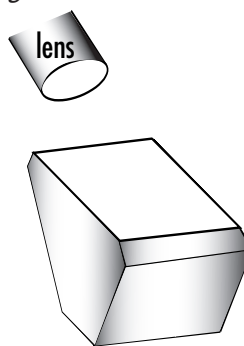


Figure 2B.

