

# >> DE-R 244 - Standard Diffractive Optical Element

**Element Number: DE-R 244**

Description: Matrix 13 x 13 Dots

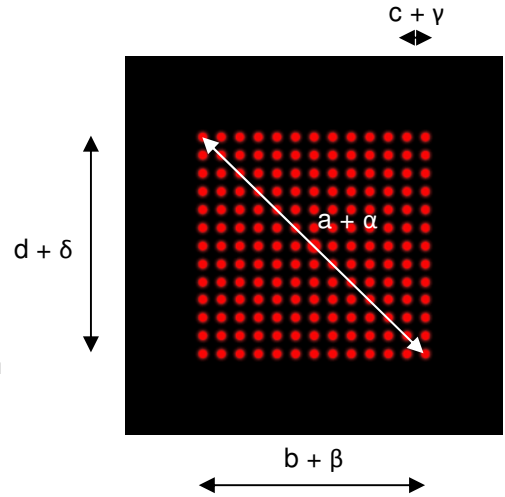
Number of Dots: 169 Dots

Material: Polycarbonate (PC)

Size (Ø x Thickness): 8 x 1.2 mm

Optimum Wavelength: **635 nm**

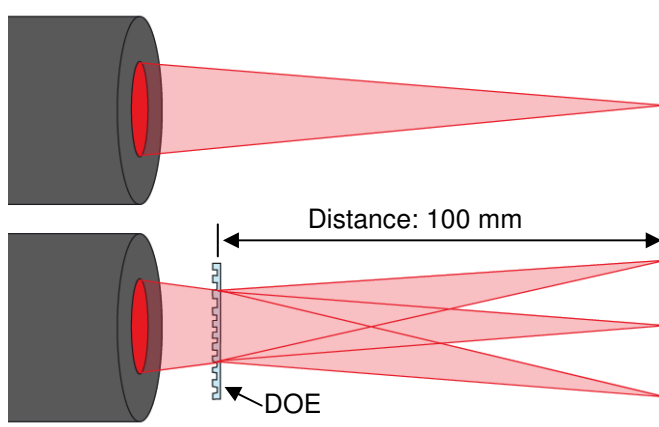
(The element is usable with a range of wavelengths, but the following parameters will vary most with the wavelength: pattern size (see table 1) and intensity in the undiffracted central spot ('zero order', see table 2). At the optimum wavelength given on this datasheet, the element shows the same intensity in the central spot as in the off-axis spots.)



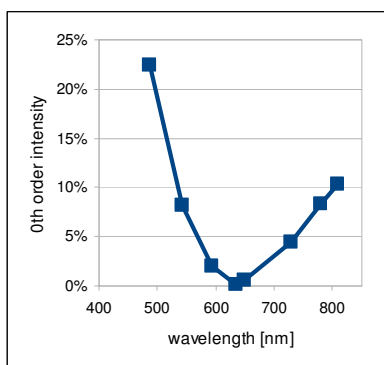
**Table 1**

| Wavelength    | Pattern Size @ 100 mm Distance |               |                |               | Pattern Angles |             |              |             |
|---------------|--------------------------------|---------------|----------------|---------------|----------------|-------------|--------------|-------------|
|               | a                              | b             | c              | d             | $\alpha$       | $\beta$     | $\gamma$     | $\delta$    |
| 488 nm        | 7.1 mm                         | 5.0 mm        | 0.42 mm        | 5.0 mm        | 4.1°           | 2.9°        | 0.24°        | 2.9°        |
| 543 nm        | 7.9 mm                         | 5.6 mm        | 0.47 mm        | 5.6 mm        | 4.5°           | 3.2°        | 0.27°        | 3.2°        |
| 594 nm        | 8.7 mm                         | 6.1 mm        | 0.51 mm        | 6.1 mm        | 5.0°           | 3.5°        | 0.29°        | 3.5°        |
| <b>635 nm</b> | <b>9.3 mm</b>                  | <b>6.6 mm</b> | <b>0.55 mm</b> | <b>6.6 mm</b> | <b>5.3°</b>    | <b>3.8°</b> | <b>0.31°</b> | <b>3.8°</b> |
| 650 nm        | 9.5 mm                         | 6.7 mm        | 0.56 mm        | 6.7 mm        | 5.4°           | 3.9°        | 0.32°        | 3.9°        |
| 730 nm        | 10.7 mm                        | 7.6 mm        | 0.63 mm        | 7.6 mm        | 6.1°           | 4.3°        | 0.36°        | 4.3°        |
| 780 nm        | 11.4 mm                        | 8.1 mm        | 0.67 mm        | 8.1 mm        | 6.5°           | 4.6°        | 0.39°        | 4.6°        |
| 808 nm        | 11.8 mm                        | 8.4 mm        | 0.70 mm        | 8.4 mm        | 6.8°           | 4.8°        | 0.40°        | 4.8°        |

## Setup:



## Diffraction Zero Order Intensity:



**Table 2**

| Wavelength | 0th Order Intensity |
|------------|---------------------|
| 488        | 23%                 |
| 543        | 9%                  |
| 594        | 2.0%                |
| <b>635</b> | <b>0.1%</b>         |
| 650        | 0.7%                |
| 730        | 4.6%                |
| 780        | 9%                  |
| 808        | 11%                 |