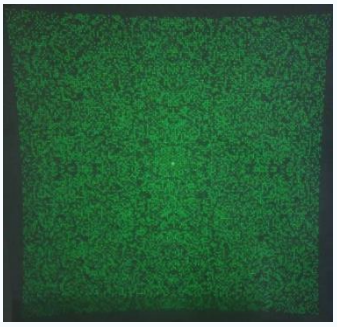
HOLOOR A VISION OF EXCELLENCE

30 YEARS A VISION OF EXCELLENCE



Structured Light DOEs

Complex structured light patterns can be easily obtained by using diffractive optical elements (DOEs)

FEATURES

- Complex structured light patterns
- High efficiency (Plastic)
- High laser damage threshold (glass)
- Coated elements
- Compact size, light-weight
- High pattern angle

APPLICATIONS

- 3D Mapping / sensing
- Machine Vision
- Volume and movement tracking
- High-End Alignment
- **Life Sciences:**
- Confocal Microscopy, Bio-Detection, Flow Cytometry, Spectroscopy

Structured light is a common method in which a known pattern is projected onto an object or a scene, and by measuring the deforming pattern, a vision system can calculate: depth, movement, etc. This technology is applied in the currently widespread 3D mapping/sensing, shape measurements and machine/computer vision. The light patterns can have various: shapes, textures and periods.

SPECIFICATION RANGE

Materials	Fused Silica, ZnSe, Plastics
Wavelength range	193nm to 10.6um
DOE design DOE	Binary and up to 16-level
Diffraction efficiency	75%-98%
Element size	2mm to 100mm
Coating (optional)	AR/AR
Custom Design	Tailored shape, texture and period
Pattern angles@532nm	Few mRad to 160°

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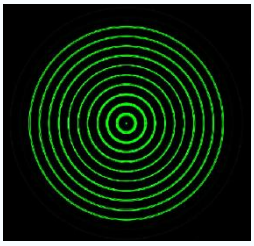
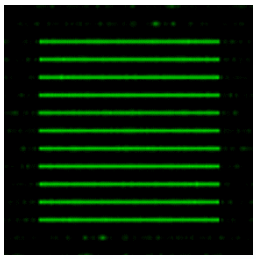
HOLO/OR has the capability to design and manufacture any complex structured light pattern according to customers' requests and applications.



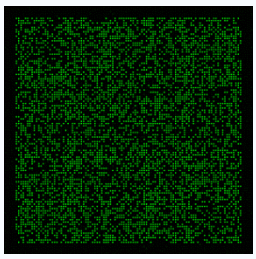
Single/Multi circle DOE

A Single/Multi circle DOE was recently proved to be the most appropriate light pattern for certain 3D mapping applications, especially with pipe/tube objects. Custom number of circles, periods and pattern angles can be easily obtained. Center spots could be added to the single circle DOE. This kind of pattern also used for high-end alignment systems specified for round objects.



Single/Multi line DOE

Single line DOE can be combined with a scanning system, whereas multi line DOE is commonly used for 3D mapping and laser-induced fluorescence applications.



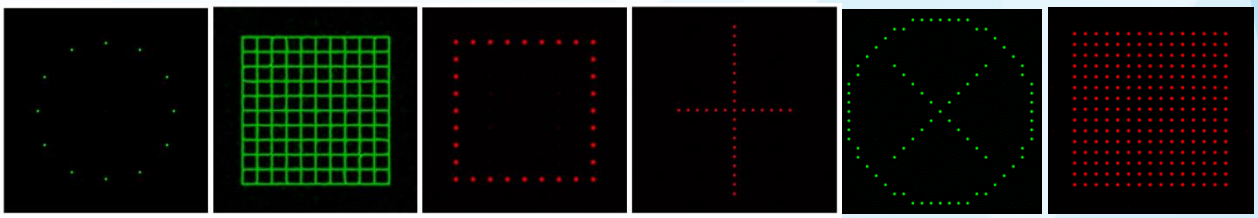
Multi spot DOE

Multi spot DOEs are widely used in 3D mapping and volume/movement tracking applications. Here the main advantages of a DOE are:

1. Generating a large dot matrix by a very small and light-weight element (the picture on the right shows a random 101x101 MS DOE).
2. Each spot has a random yet stationary (constant with time) intensity. Other common multi spot structures are the high uniformity 15x15 matrices or hexagonal structure matrices where each spot is equally separated from its six neighboring spots.

More options

The pictures below present custom structured light patterns that are used in various applications.



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