

Diffusive Microlens Array

Diffusive microlens array optical component spreads a point light source into a tophat distribution

Product Name

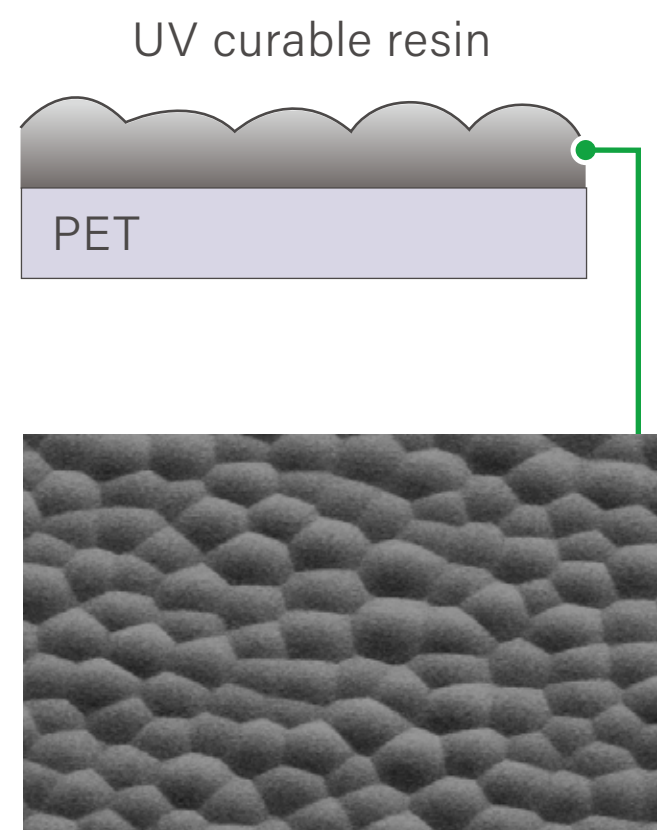
Diffusive Microlens Array

Features



- Designed diffusive microlens array structure with micron sized lenses on surface of base film.
- Excellent top-hat diffusive property with reduced MURA of projected image compared to coated Diffuser film or Frosted Diffuser (Glass).

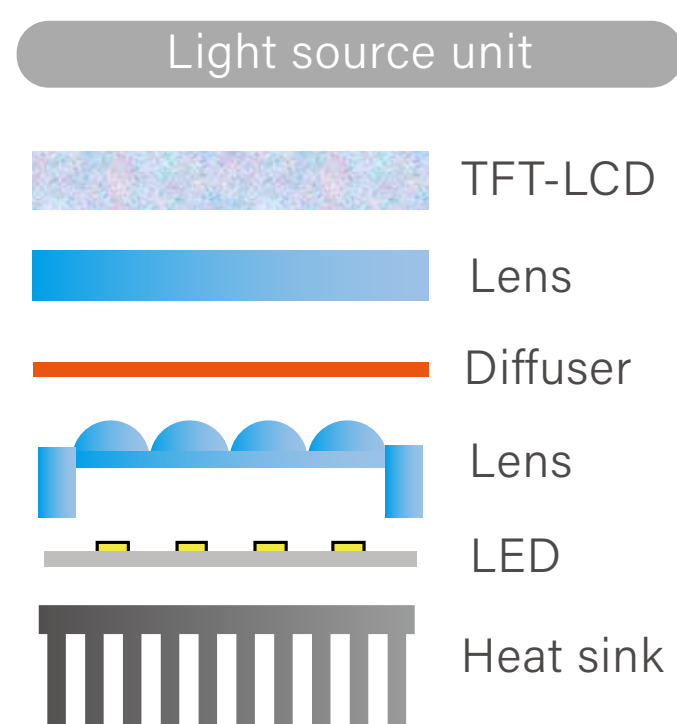
Structure



Applications

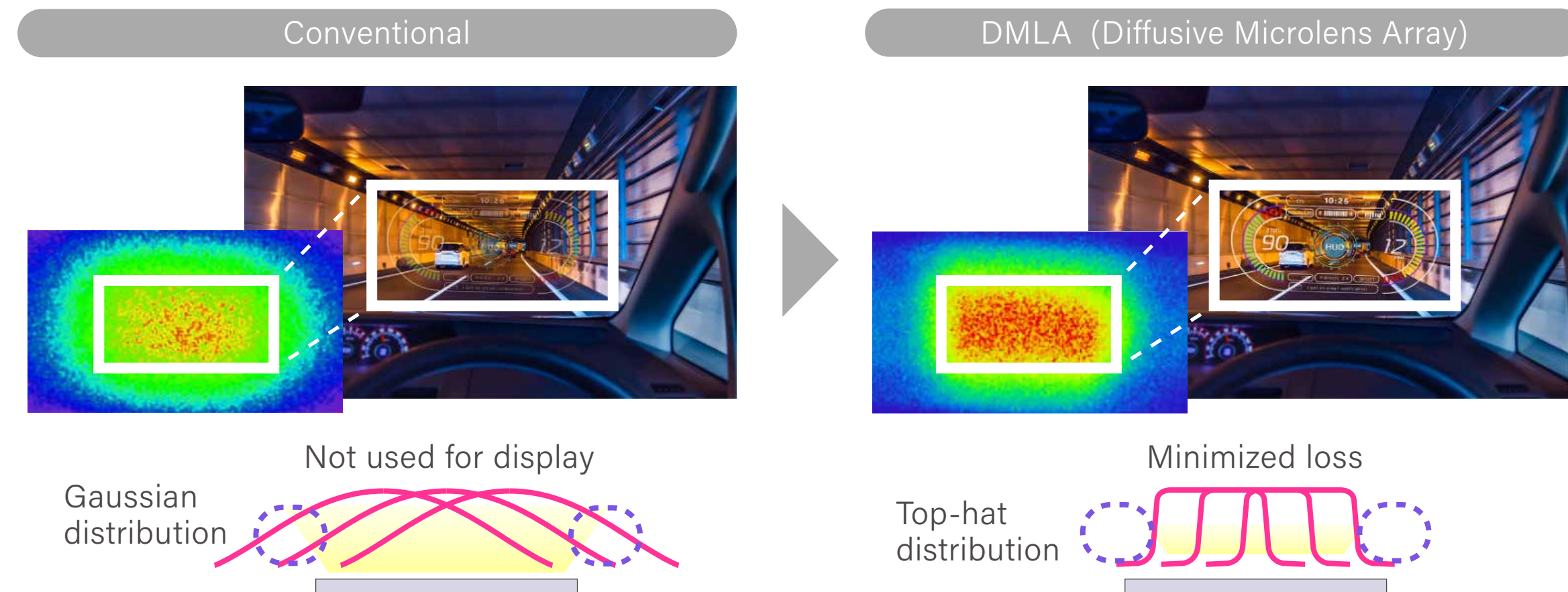
Suitable for automotive head-up displays, sensors, consumer projectors

Projection devices



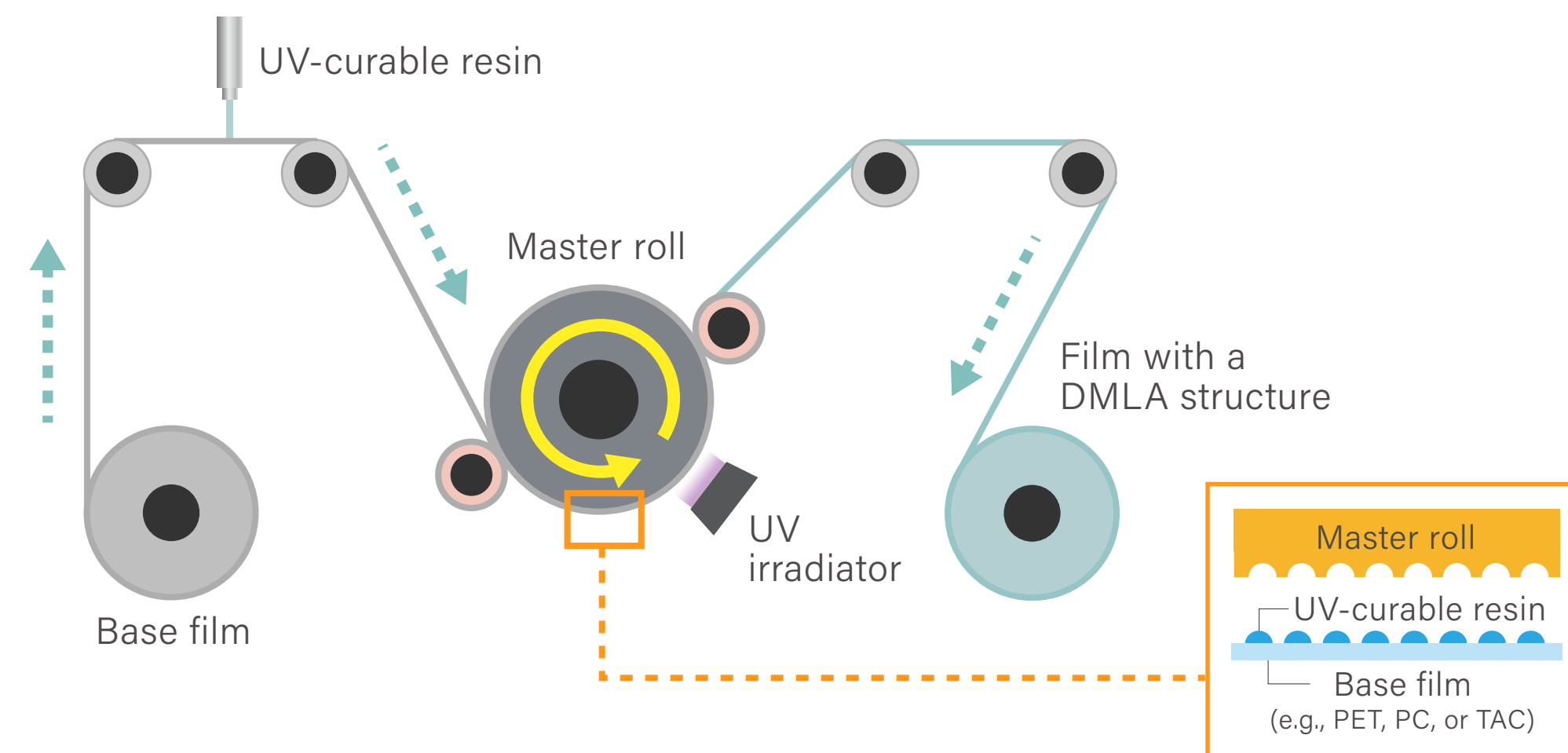
Effect

Concept for LCD type AR-HUD

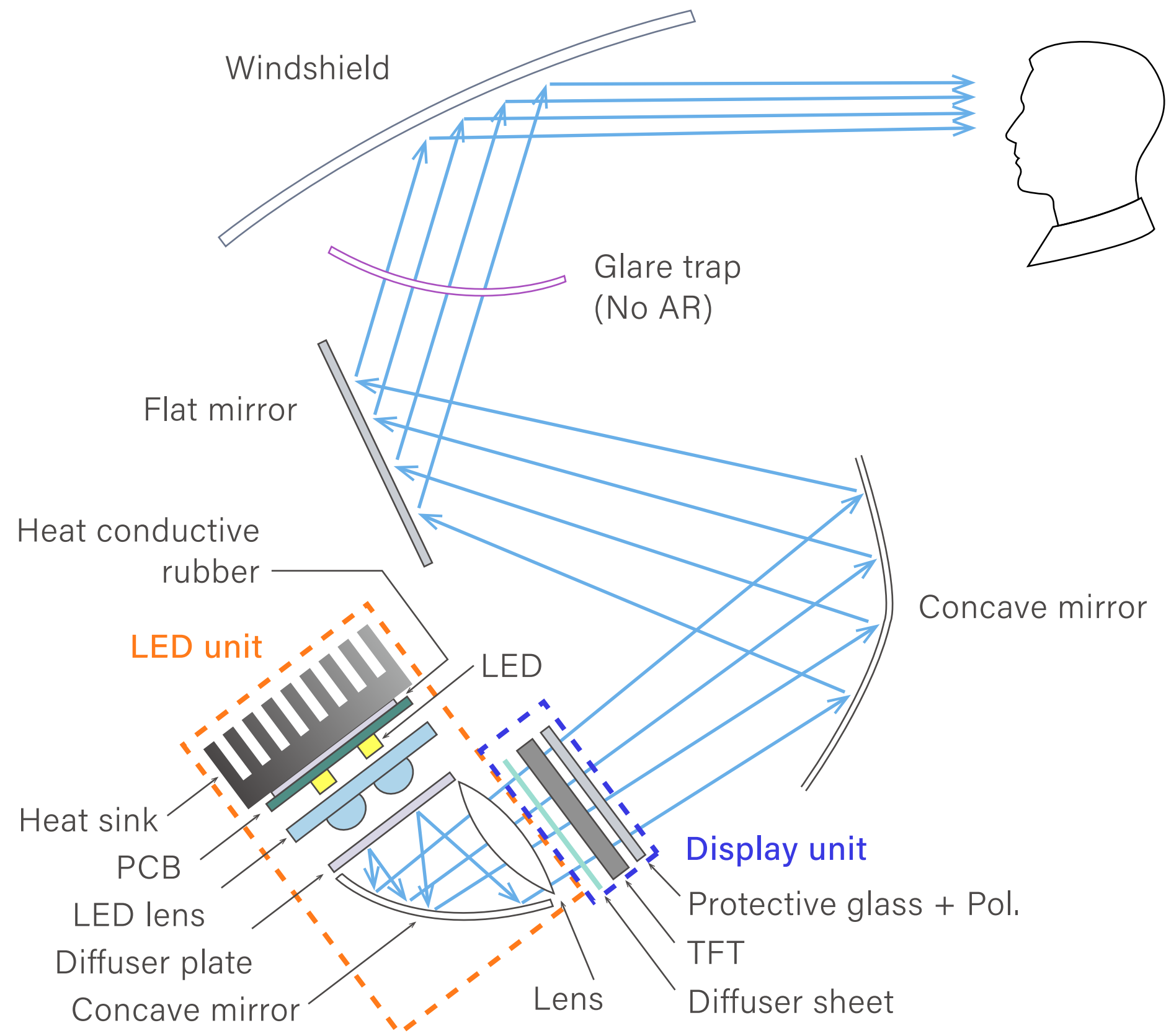


Fabrication

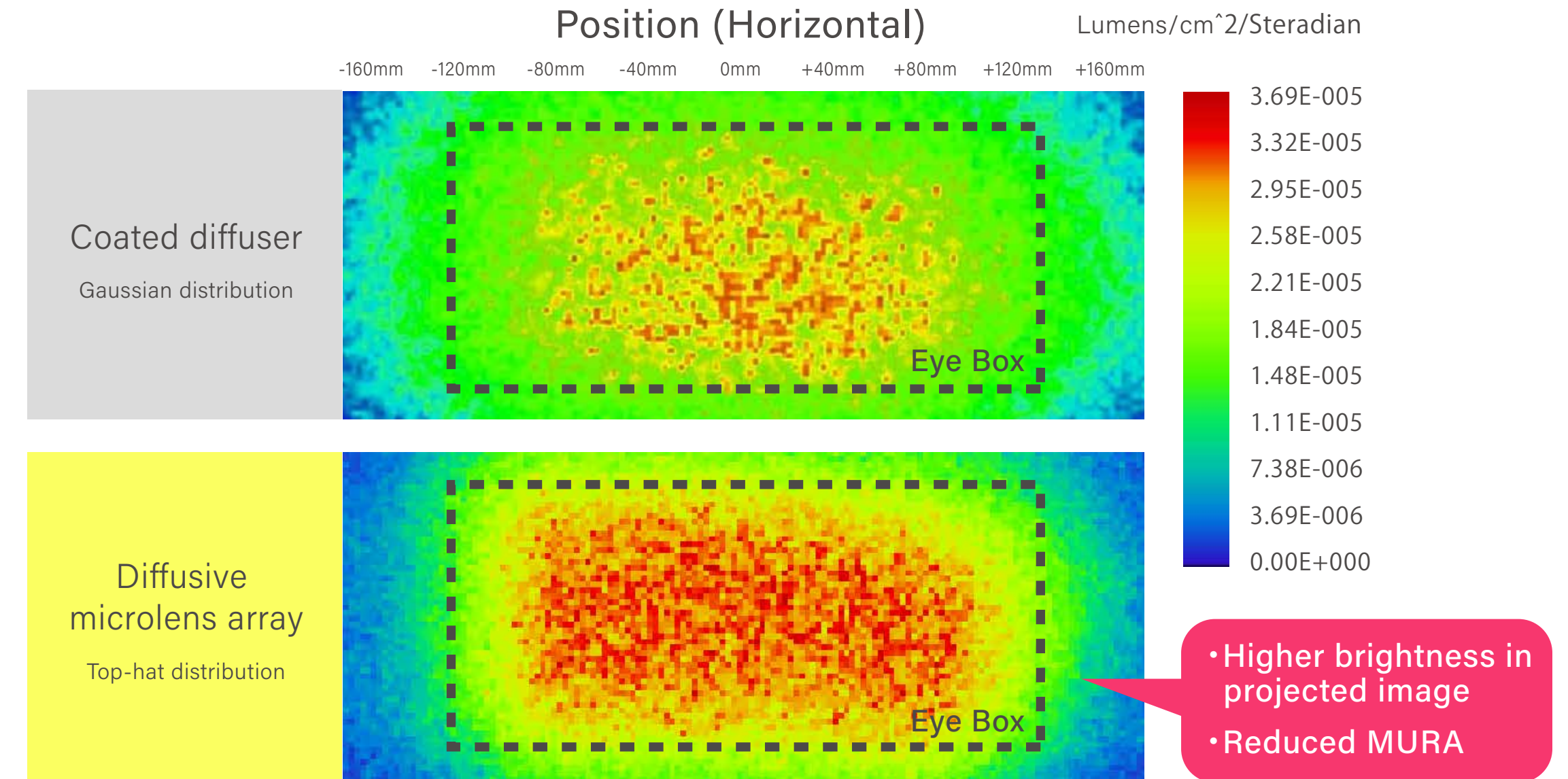
Imprint process with formulated UV-curable resin ensures high temperature stability and good adhesion to substrate.



Optics design



Simulation Results



Simulation Conditions

Set value	Set value
Diffuser type	• Coated diffuser: 5 deg • Diffusive micro lens array: 8 deg
Screen size	200mm(V) x 400mm(H)
Field of view	7°(V) x 3°(H)
Virtual image distance	2.6 m
Magnification	4.7 times

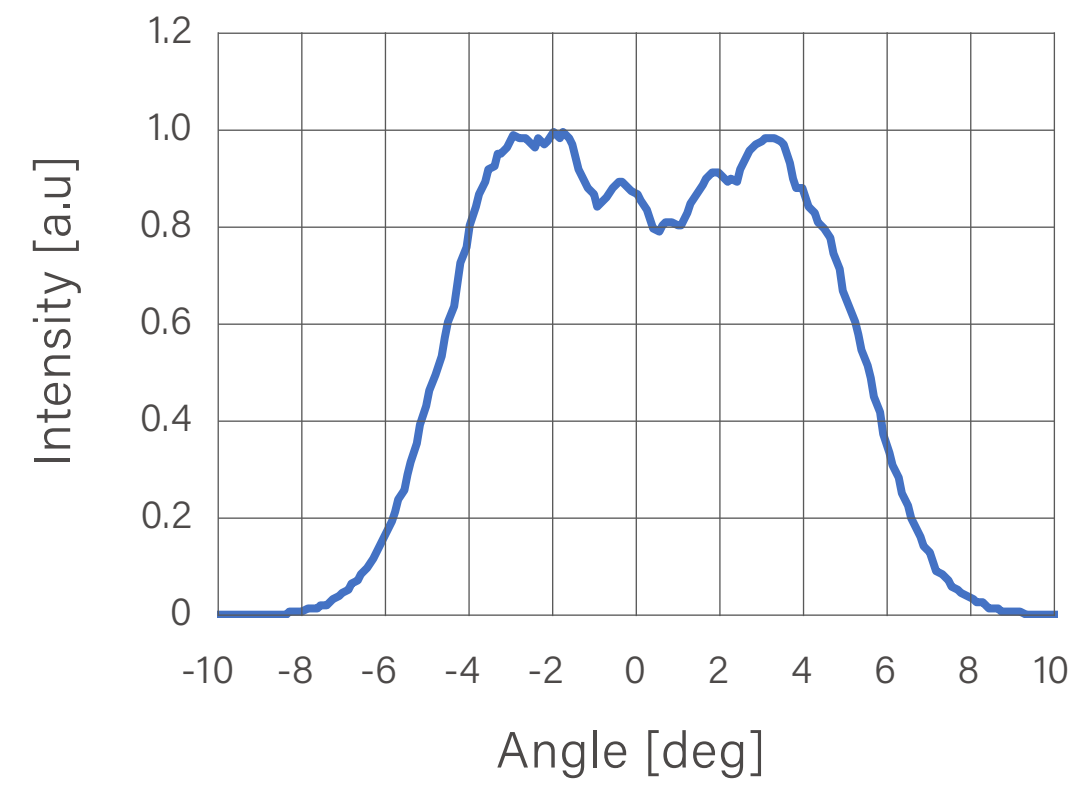
Software

ZEMAX OpticStudio

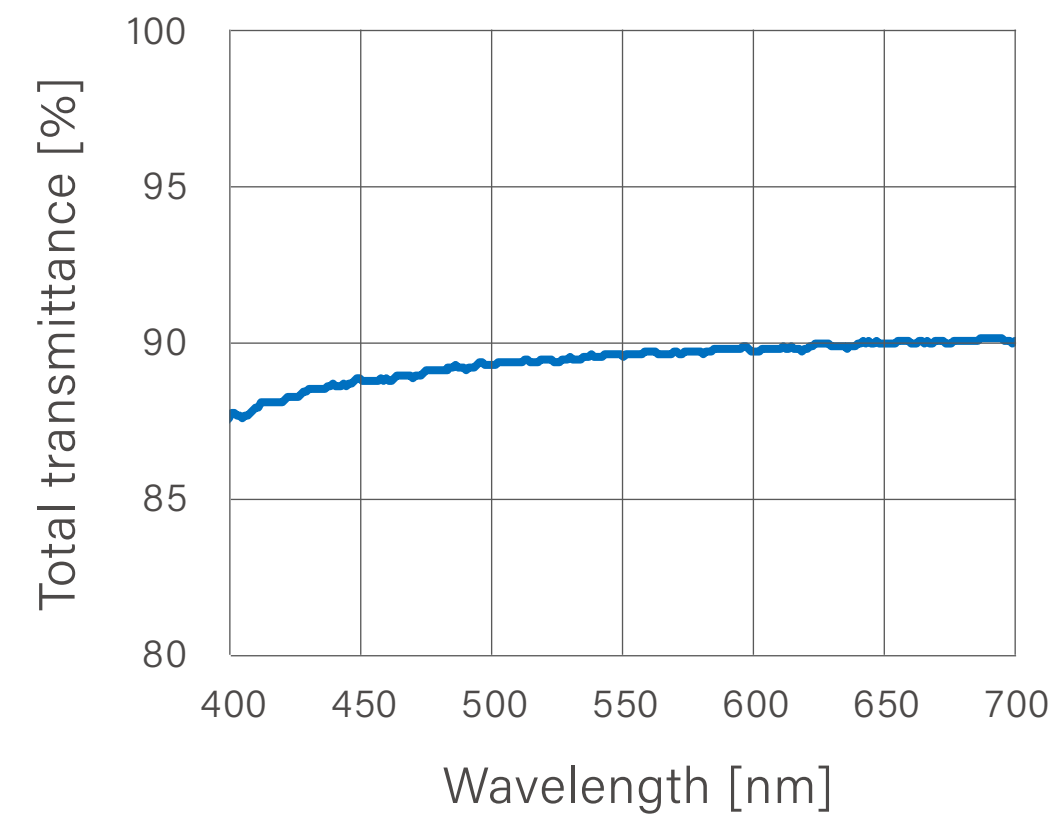
Properties

Diffusive angle (FWHM): 10.2 deg, Total transmittance: 89.4%

Diffusion property



Transmittance

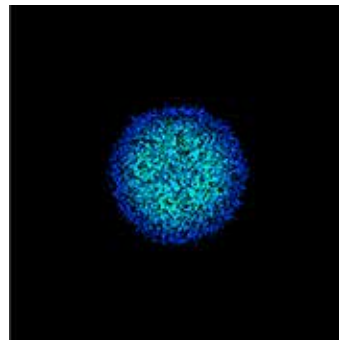


Diffuser sample

Material: PET

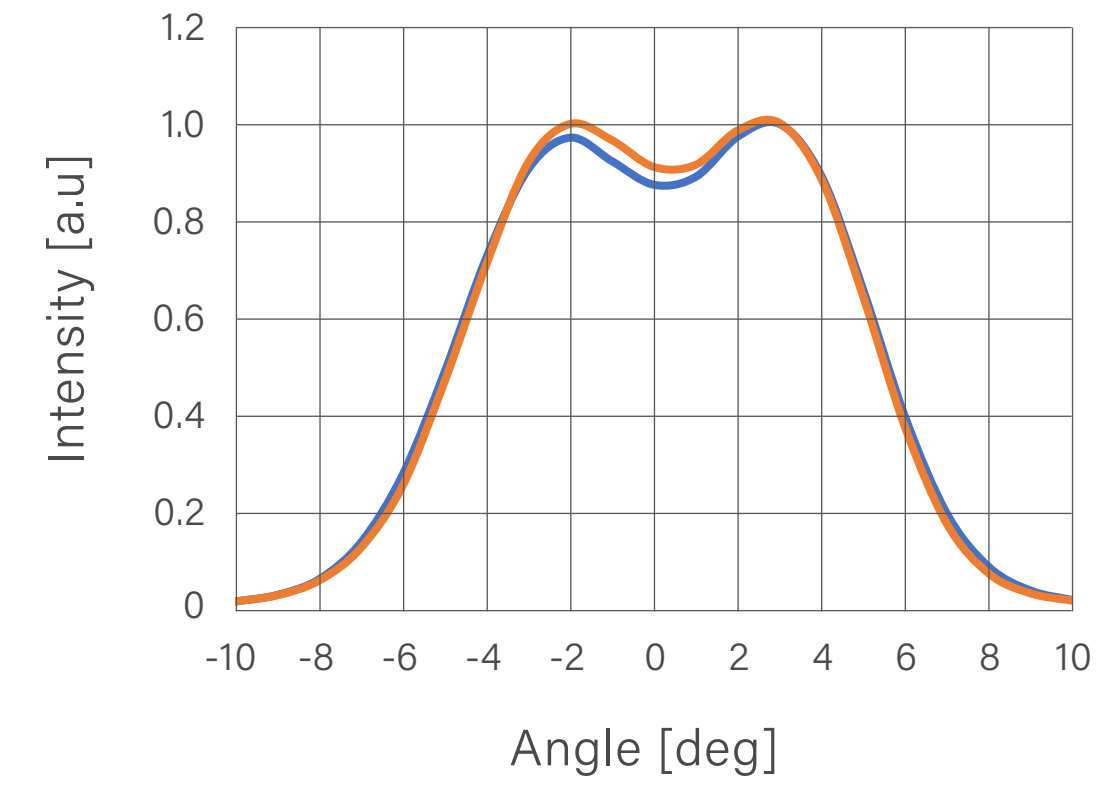
Circular type

FWHM angle : 10deg

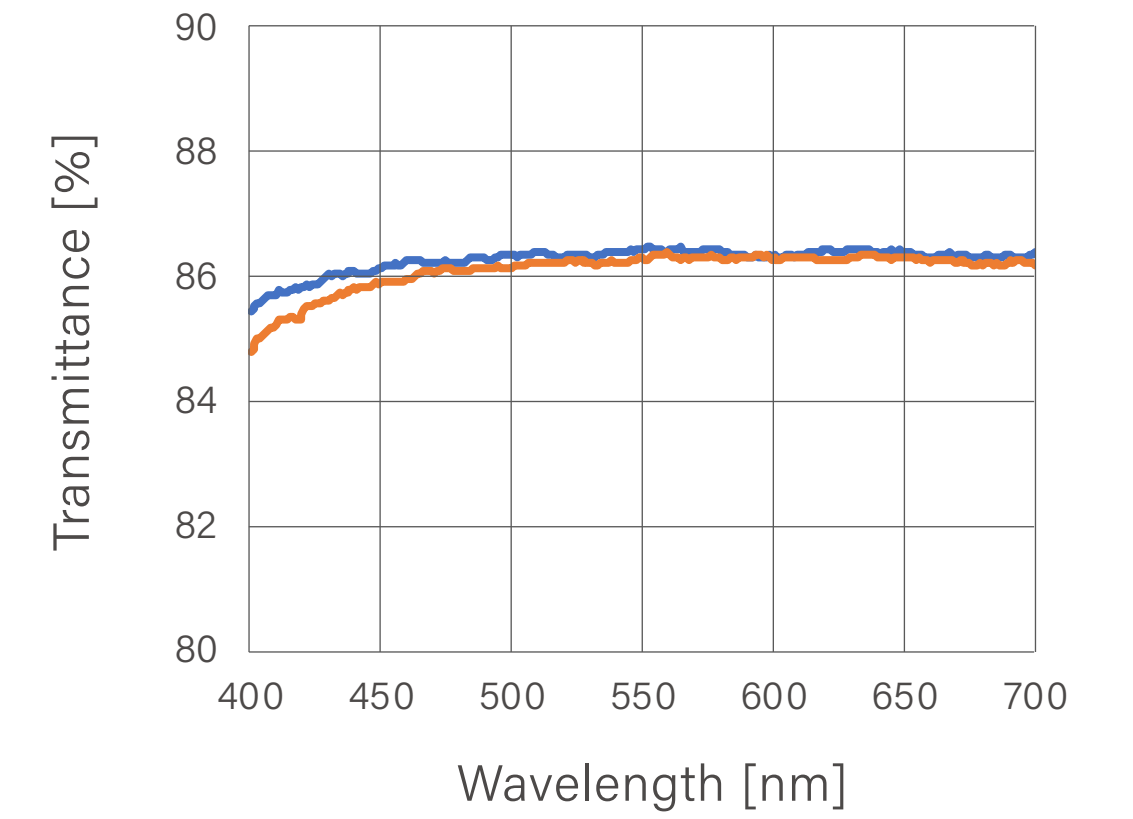


Reliability

Diffusion property



Transmittance



Diffuser sample

Material: PET

Diffusive angle (FWHM): 10.2 deg

Reliability conditions

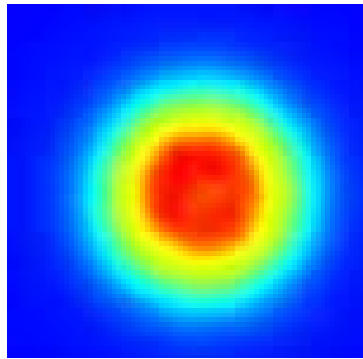
Temperature: 105°C

Time: 500 hours

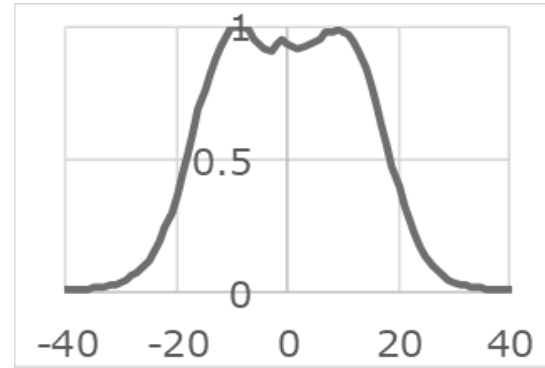
Specifications

Items	Specifications
Base film material	PET
Size	200 x 400 mm
Thickness of base film	100 μm
Diffusive angle (FWHM)	8°, 10°, 12°
Beam shape / light distribution	Circular / top-hat type ^{*1 *2}
Total transmittance	Over 86% @FWHM10° * Depends on diffusive angle with Integral sphere used

*1 Circular



*2 Top-hat type



Dexerials America Corporation

TEL: +1-586-596-4076

<https://www.dexerials.jp/en/>

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