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CODE NUMBER: 120000000658

SUBJECT: KEPL153110 Lens Coupling - Output Luminous Intensity Measurement



- High lighting efficiency
- Excellent luminous flux
- Superior optical engineering for a perfect uniform light distribution
- Easy fixing system to the PCB
- No vibration problems
- Complying with UL94 Specifications
- UV protected

Typical Applications:

Khatod Optics are suitable for any application in Wide Area Lighting, Indoor and Outdoor:

- Wall Washing
- Architectural lighting
- Lamps
- Bike Lights
- Most applications where a compact light source is required
- Any applications in narrow or recessed spaces

Khatod Optics are a basic element to make your optical design real.

The right optical solution is fundamental for type and number of LEDs used in your design.

Advanced research, scientific rigour, great attention to the continuous evolution in LED Technology, have led Khatod to develop optical solutions performing an excellent homogeneous luminous flux, and high lighting efficiency.

Khatod delivers the widest range of Single, Triple, Quad and Multiple Lenses, compliant with MR16, MR11, AR111 Standards, for the major LEDs manufacturers

They are available in a variety of beam angles: Narrow, Medium, Wide, Super-Wide, Elliptical and special Blade-Shaped Beam.

Khatod Lenses meet the most demanding lighting specifications and applications, while delivering real cost-effective and competitive products.

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1 Light Source Model

| Parameter | Symbol | Value | Unit |
|--------------------------------|--------|------------------|------|
| Lens / Reflector Model | - | KEPL153110 | - |
| Material (More info on page 9) | - | PC, PMMA | - |
| Dimensions | - | See page 8 | - |
| Source Model | - | SEOUL Z5P | - |
| Number of Sources | N | 4 | - |
| Power Supply Type | - | ISO TECH ISP3303 | - |
| Driver Type | - | - | - |
| Driving Voltage | V_F | - | V |
| Driving Current | I_F | 350 | mA |
| Nominal Flux | Φ | 120×4 | lm |

2 Measurement Setup

| Parameter | Symbol | Value | Unit |
|----------------------|--------|--------------|------|
| Operator | - | Simone Bassi | - |
| Goniophotometer Type | - | KLX12M | - |
| Measurement Distance | z | 5 | m |
| Room Temperature | T | 25 | °C |
| Date | - | 30-Mar-2012 | - |

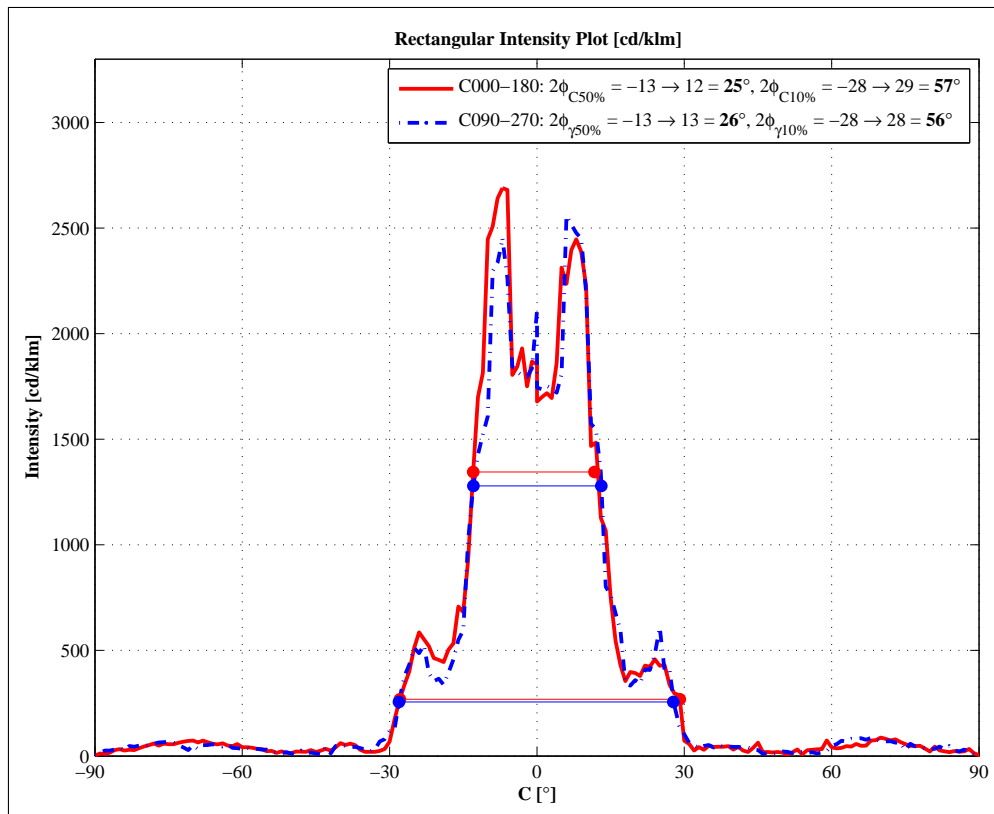
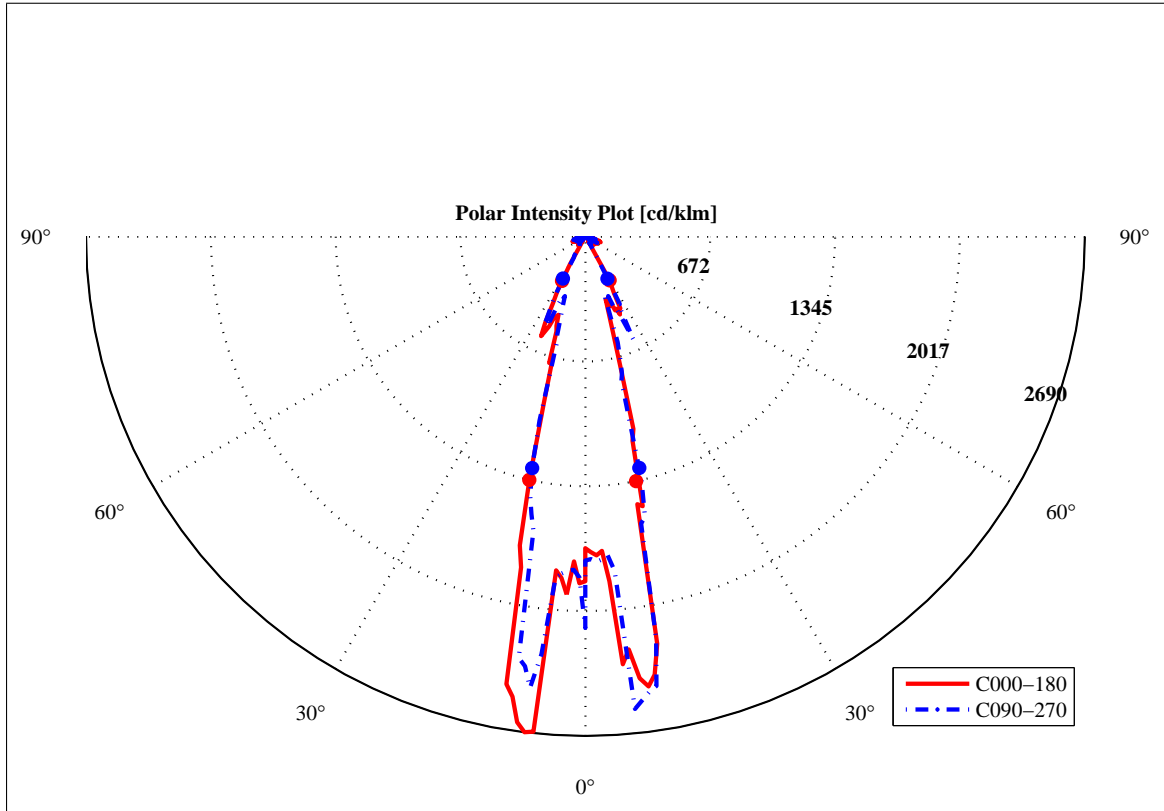
3 Results

| Parameter | Symbol | Value | Unit |
|---|----------------------|-------|------|
| Total Flux | Φ | 360 | lm |
| Max Intensity | I_{\max} | 1070 | cd |
| Max Illuminance at 5 m | E_{\max} | 42 | lx |
| C-Viewing Angle at 50% I_{\max} | $2\phi_C$ | 25 | ° |
| γ -Viewing Angle at 50% I_{\max} | $2\phi_\gamma$ | 26 | ° |
| C-Viewing Angle at 10% I_{\max} | $2\phi_{C10\%}$ | 57 | ° |
| γ -Viewing Angle at 10% I_{\max} | $2\phi_{\gamma10\%}$ | 56 | ° |
| General Optical Measurement Tolerance | - | ±10% | - |

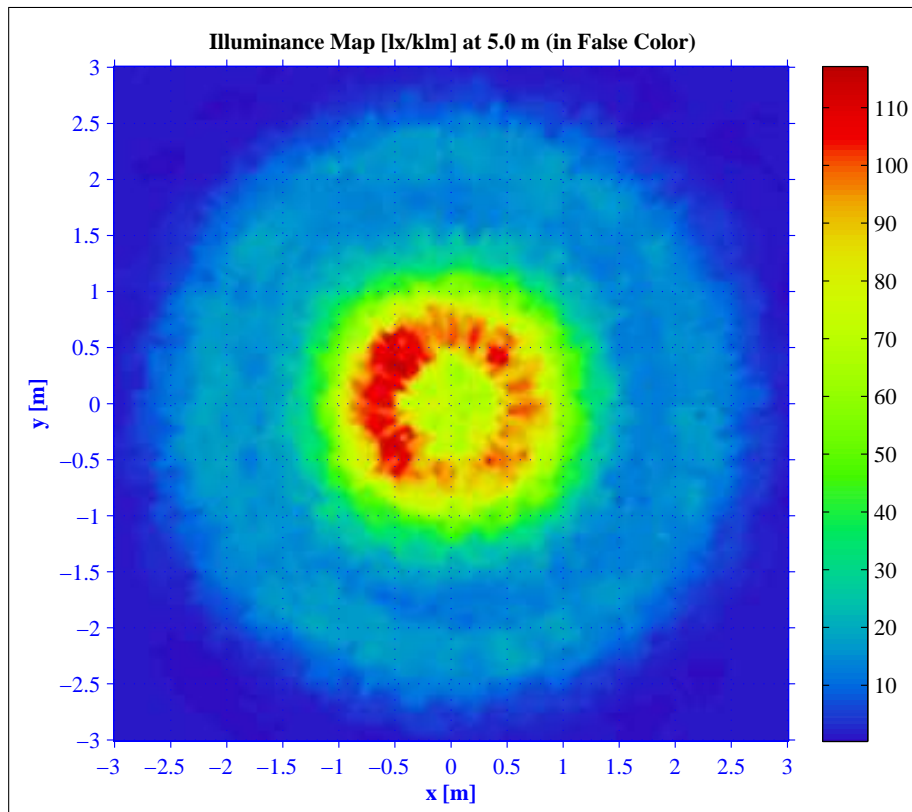
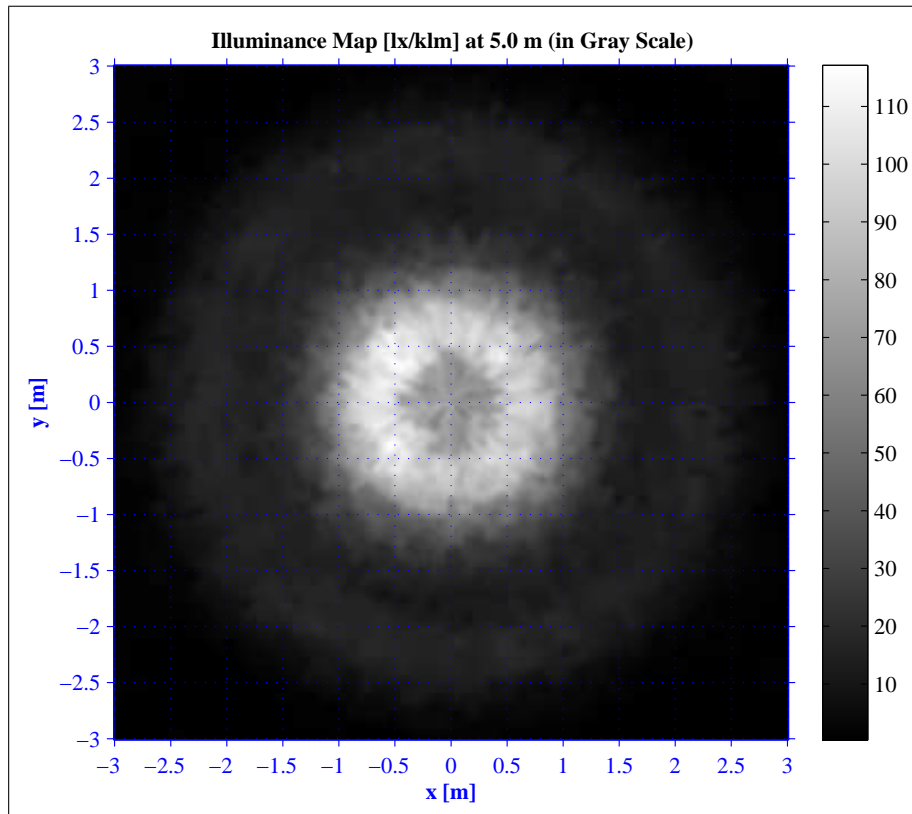
NOTES:

- Intensity (I) and illuminance (E) data are normalized by 1000 lm
- The optical values shown are the result of optical simulations carried out with ASAP and ZEMAX software systems. The optical simulations are carried out on the basis of the typical values provided in the LED manufacturers' official datasheets. The photometric analysis has been carried out on physical samples. On request, by supplying your PCB, we can provide the measurement photometric file.

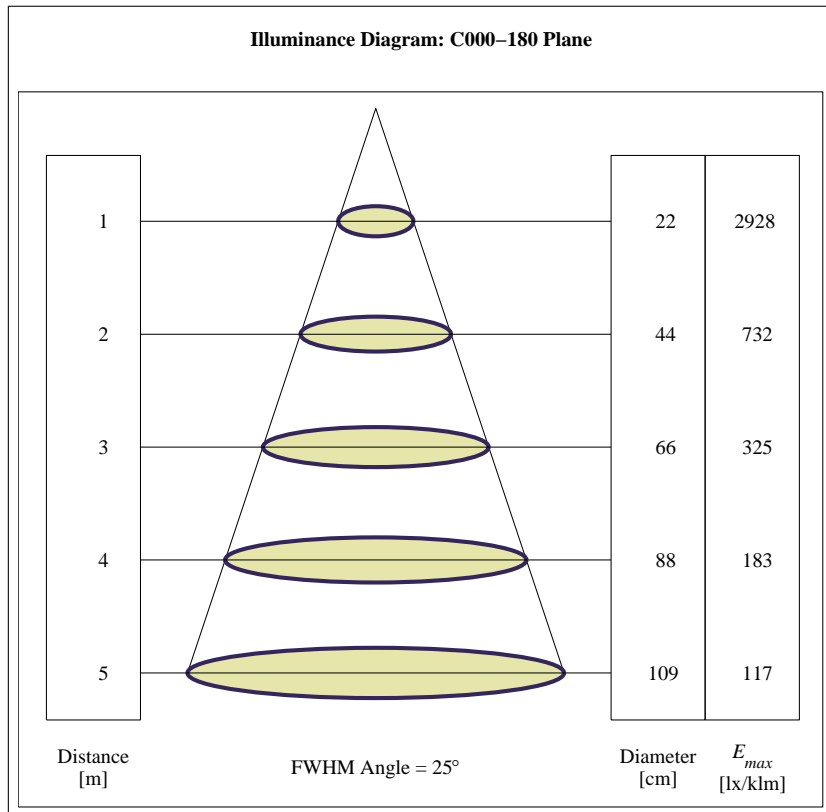
4 Intensity Plot



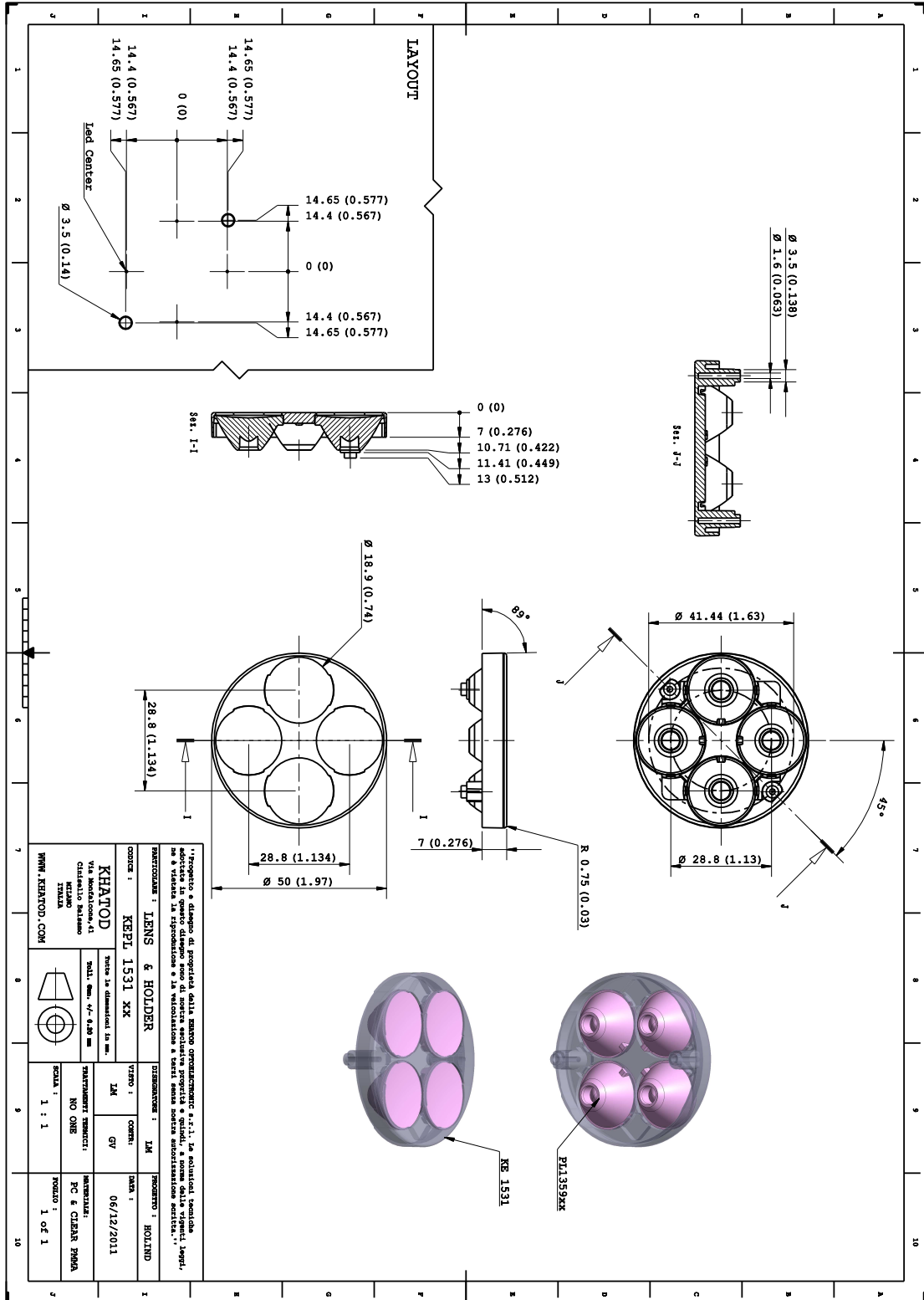
5 Illuminance Map



7 Illuminance Diagram



8 Drawing



9 Use and Maintenance

Lens characteristics

| Parameter | Symbol | Rating | Unit |
|-----------------------|-------------|------------|------|
| Lens Material | PMMA Optics | -- | -- |
| Holder Material | PC | -- | -- |
| Operating Temperature | Topr | -30 to +85 | °C |
| Storage Temperature | Tstg | -30 to +85 | °C |

Notes:

Please note that flow lines and weld lines on the external surfaces of the lenses are acceptable if the optical performance of the lens is within the specification described in the section "OPTICAL CHARACTERISTICS"

- Should you require further information, please contact Khatod for advice.
- All lens testing must be subject to identical conditions as Khatod test condition.
- Published by Khatod optoelectronic srl - All the data contained in this document are the property of Khatod optoelectronic srl and may change without notice.

KHATOD LENS Use And Maintenance

- DO NOT HANDLE OR INSTALL LENSES WITHOUT WEARING GLOVES, SKIN OILS MAY DAMAGE LENS OR LIGHT TRANSMISSION
- CLEAN LENSES WITH MILD SOAP AND WATER AND A SOFT CLOTH
- DO NOT USE ANY COMMERCIAL CLEANING SOLVENTS ON LENSES

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