KHATOD
OPTICAL SOLUTIONS FOR LED LIGHTING

TECHNICAL DEPT.
Lenses Test Report

Contents

Far RED, Deep RED, Red, Red-Orange, Amber, PC Amber, Mint, Lime, Green, Cyan, Blue, Royal Blue, Violet

Neutral White, Warm White, Cool White

Special Features

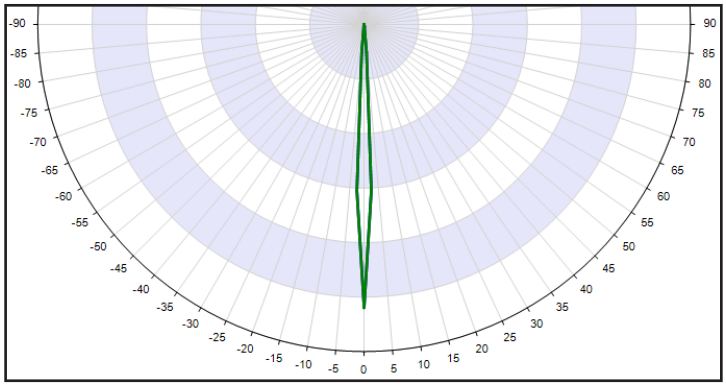
- Lens: 80mm diameter, designed for **Tunable White** and **full color applications**.
- Material: Silicone. Allows the use of high-power and high-wattage LEDs.
- *Set to work with Osram Ostar Stage, 20W (and 60W).
- Set to work with **9-LED Cluster, 6 colors.**
- Offers the possibility to create custom LED clusters in different beam angles, able to perform and guarantee high luminous efficiency.

Why a lens made of SILICONE?

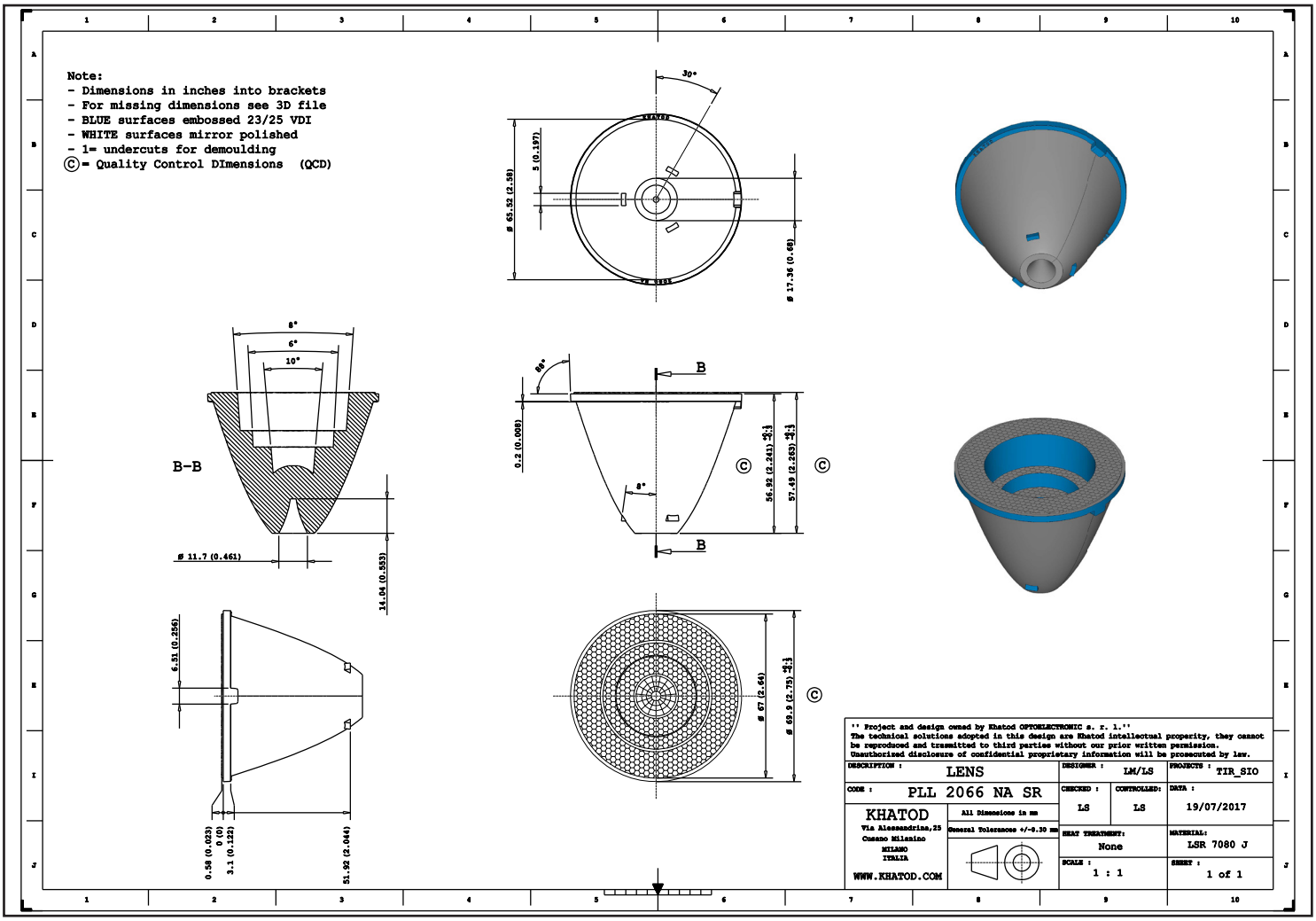
The LEDs of latest generation - High Brightness LEDs – achieve very high temperatures which could put strain on the conventional polymers such as PMMI, PMMA and PC.

- Silicone is much more resistant to high temperatures.
- Silicone considerably reduces the yellowing effect.
- No extra protection, as for example glass cover.
- As an isotropic material, Silicone provides PLL2066xxSR with high flexibility which allows an easy fit to the final application.
- As an elastomer, Silicone provides a perfect compensation for the construction mechanical tolerances typical of the final application.

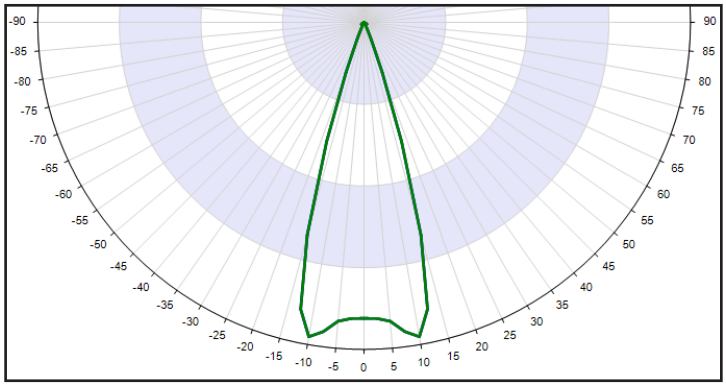
PLL2066NASR + KEL2066 – Ostar Stage LERTDCY_S2WN

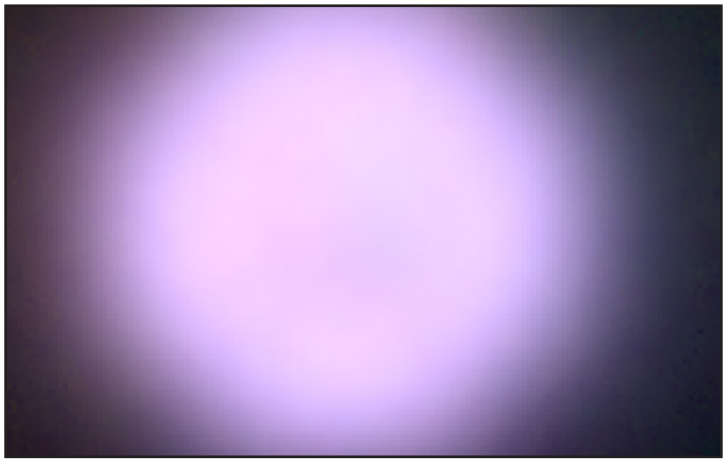


- Material = PC for Holder**, SILICONE for Lens**
- **Efficiency: Over 88%**
- Full angle at 50% from maximum: ~ 6.3°
- Full angle at 10% from maximum: ~ 11.3°
- The light spots here represented refer to tests carried out with LED Ostar Stage LERTDCY_S2WN ~875lm@LED@1000mA

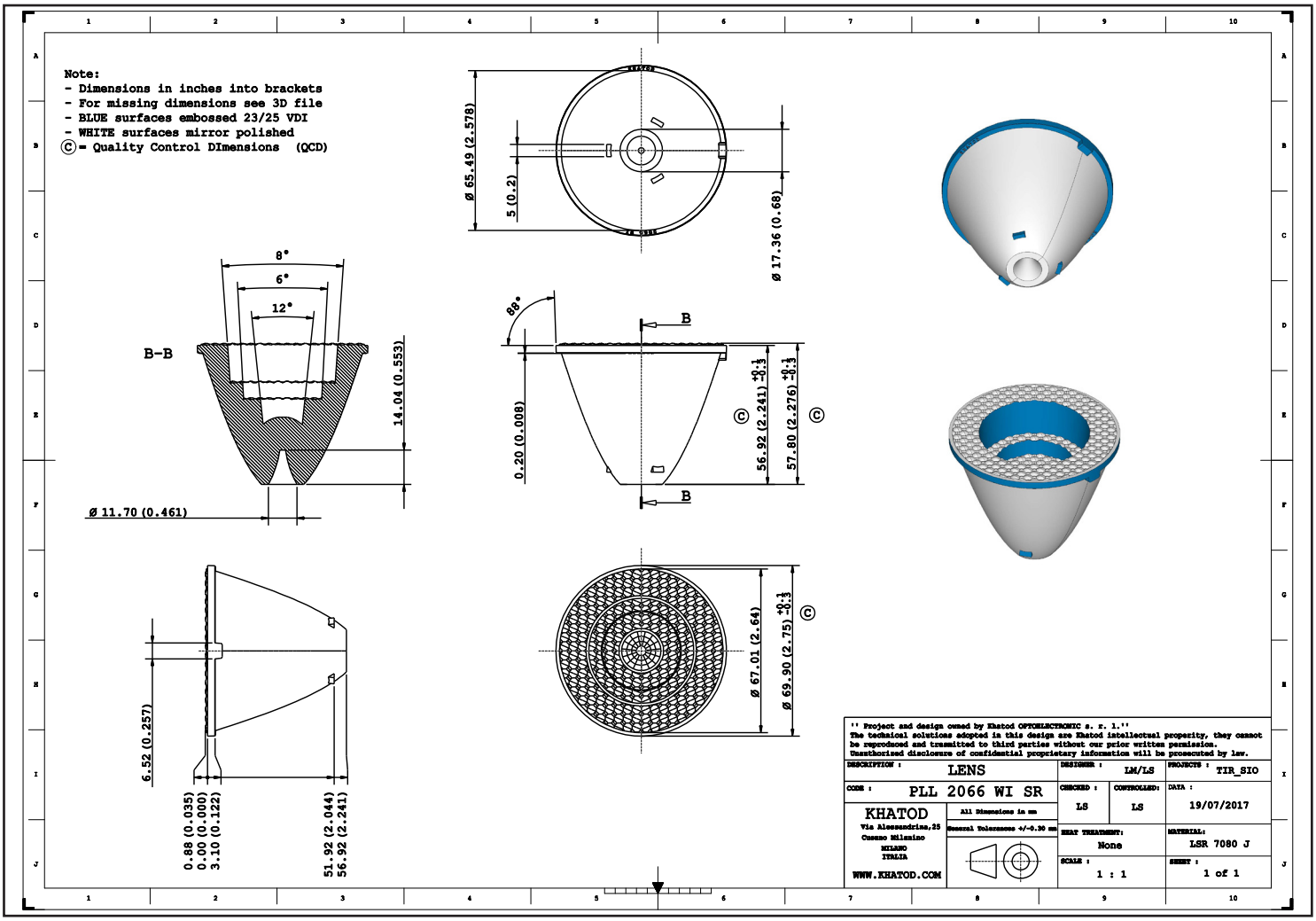


PLL2066WISR + KEL2066 – Ostar Stage LERTDCY_S2WN

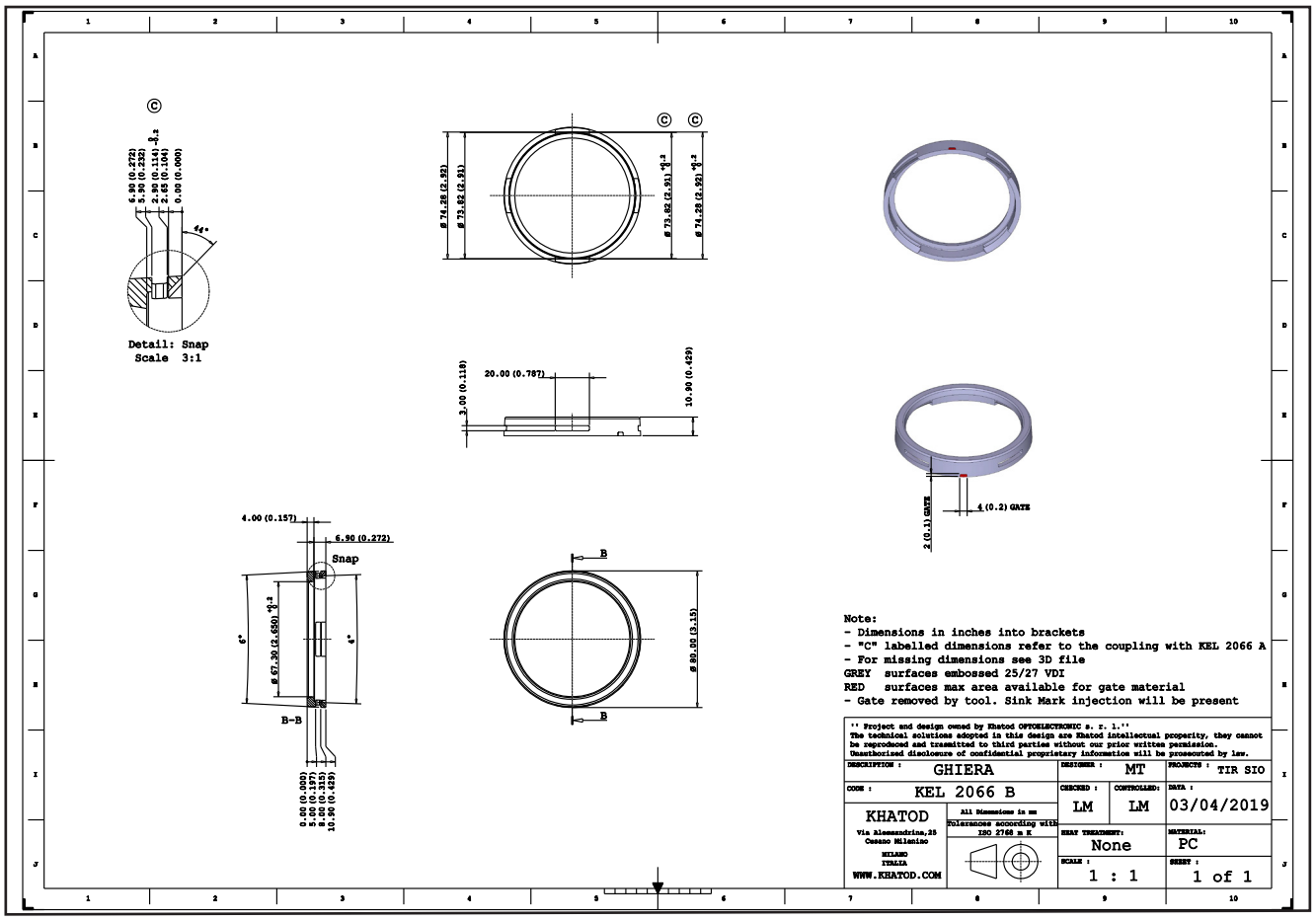


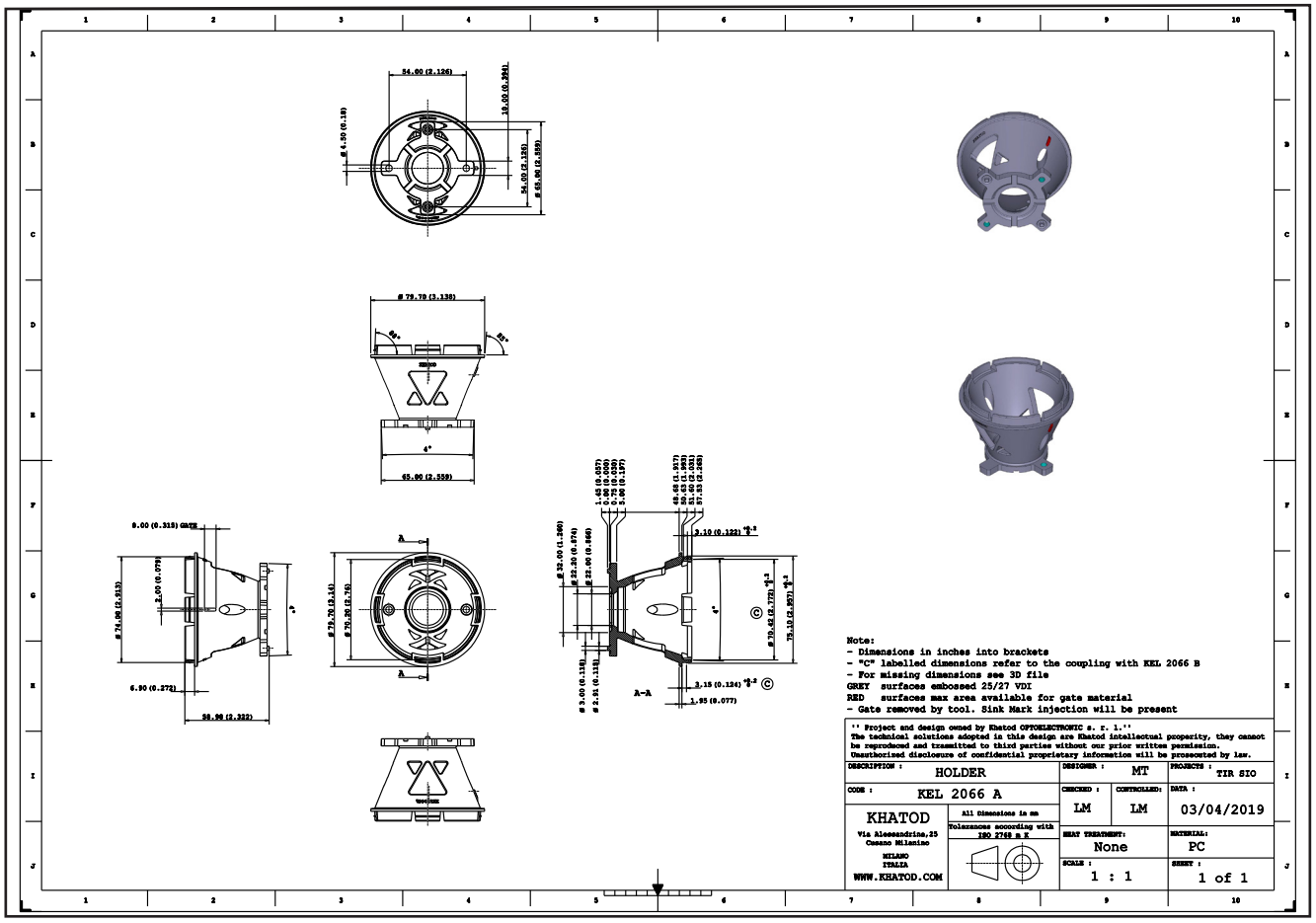


- Material = PC for Holder**, SILICONE for Lens**
- **Efficiency: Over 82%**
- Full angle at 50% from maximum: ~ 33°
- Full angle at 10% from maximum: ~ 43°
- The light spots here represented refer to tests carried out with LED Ostar Stage LERTDCY_S2WN ~875lm@LED@1000mA

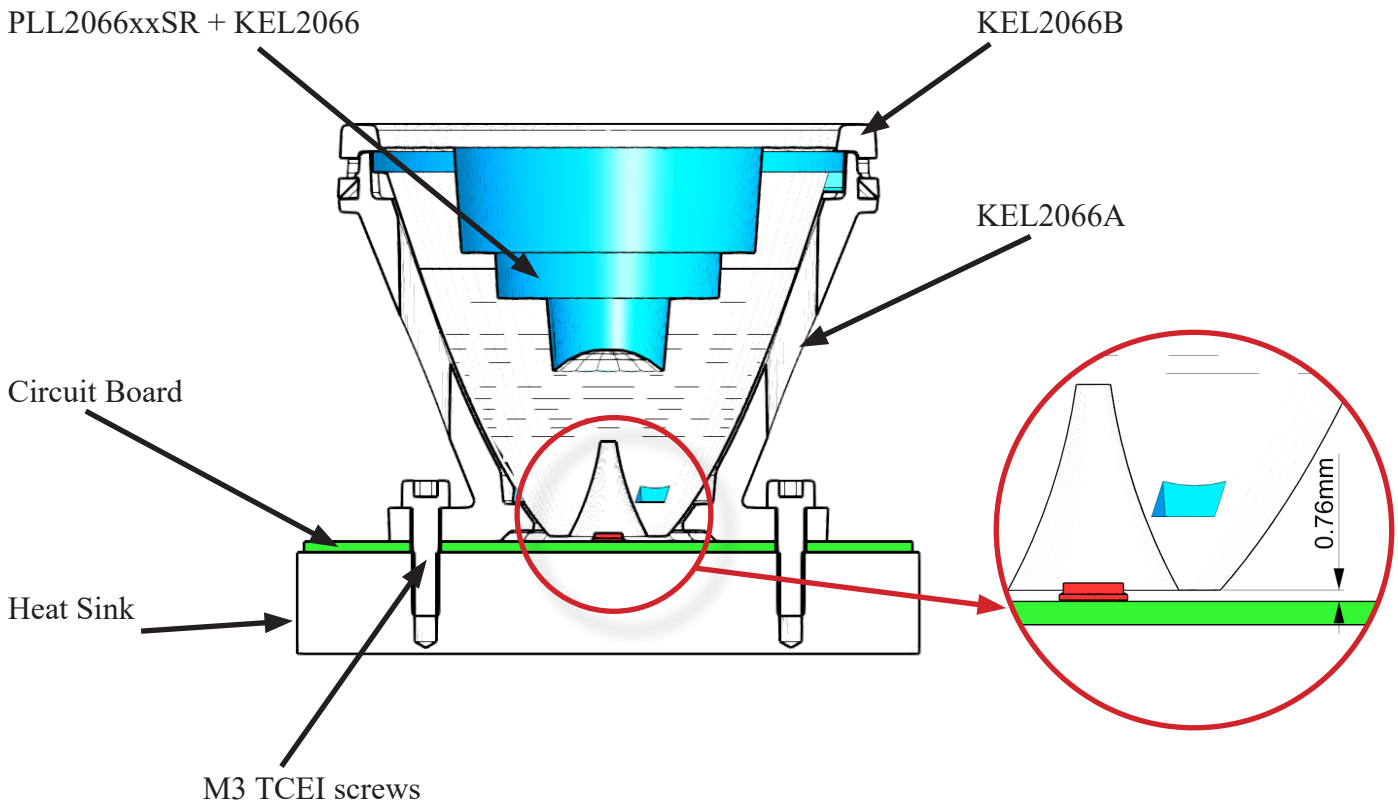


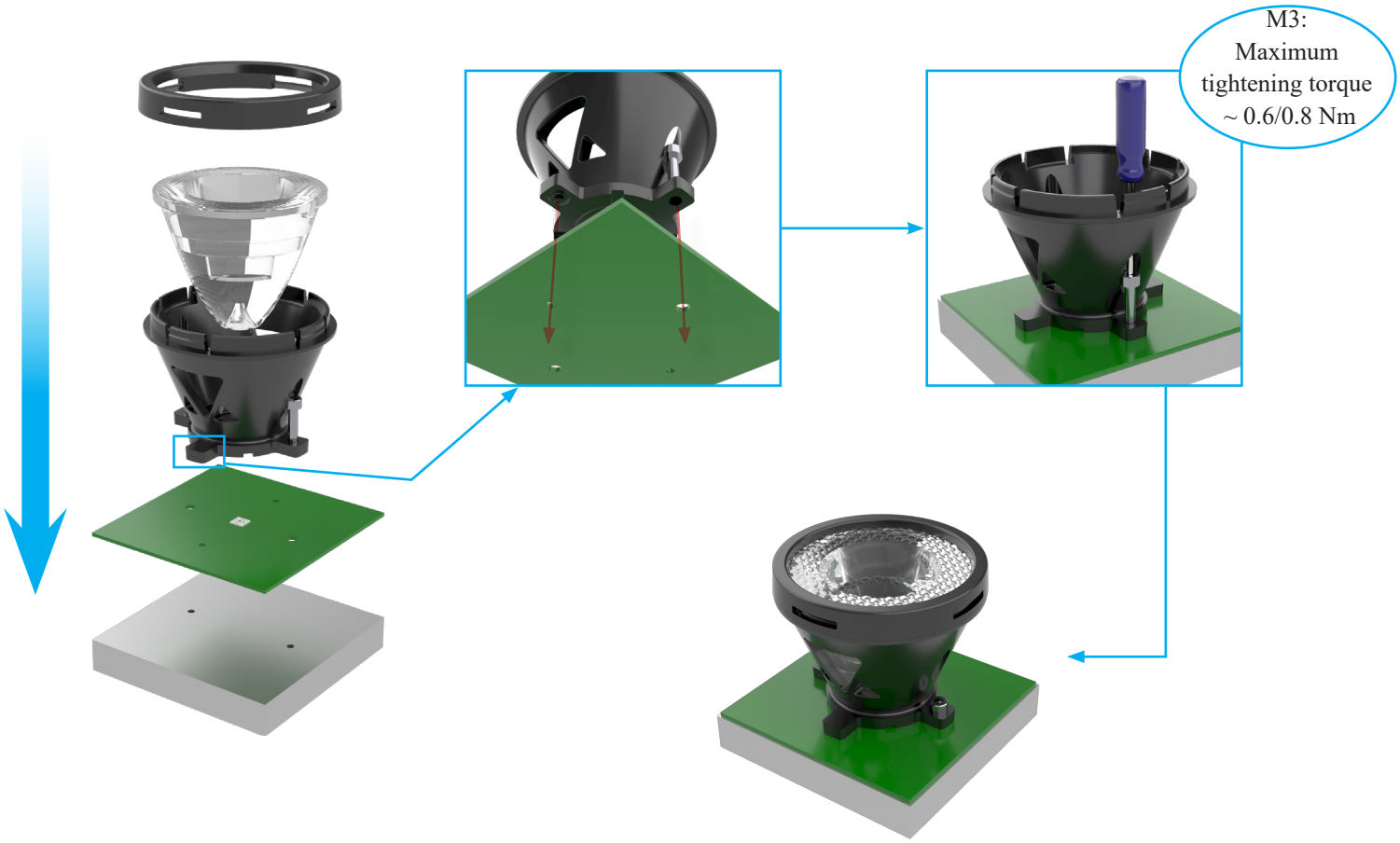
KEL2066A - KEL2066B - Holder





Assembly Specifications





Customize your colors

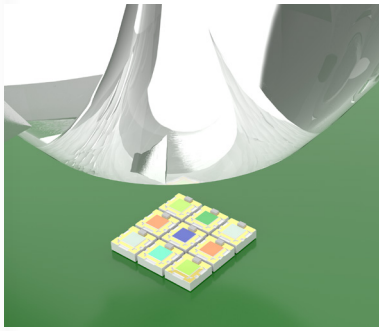
Far RED | Deep RED | Red | Red-Orange | Amber | PC Amber | Mint | Lime | Green | Cyan | Blue | Royal Blue | Violet

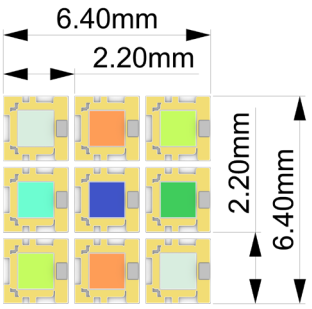
Neutral White | Warm White | Cool White

The wide variety of LEDs currently available on the market enables to customize the LED clusters with multiple colors.
PLL2066xxSR lens from Khatod allows to use clusters made up to 9 LEDs with 2x2mm case. The customers are given the the opportunity to choose the color that best meets their requirements and make the difference with the standard proposals.
PLL2066xxSR lens is high performing and guarantees excellent light output even with clusters made from 4 or 6 LEDs.

Here below, you will find an example about using PLL2066xxSR lens by customizing the light color without penalizing the optical performance.

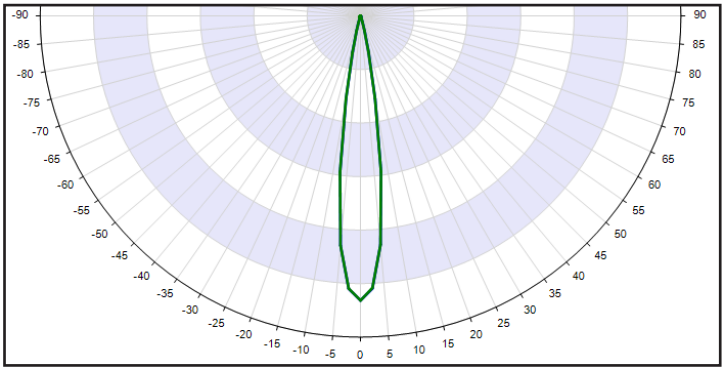
Example of a cluster made of 9 Lumileds Luxeon CZ Color LEDs and using 6 different colors





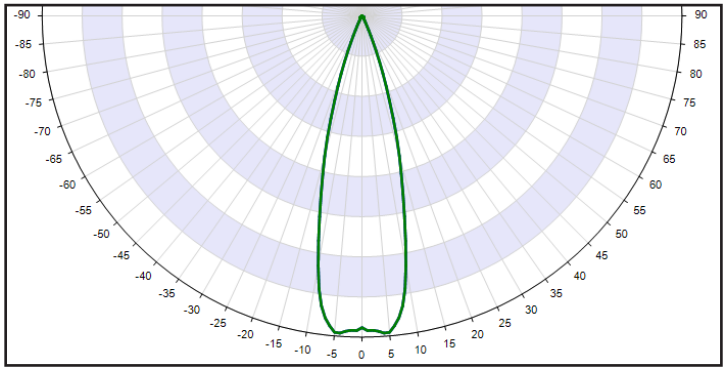
LEDs: 1 Blue, 2 Mint, 2 Cyan, 2 Lime, 1 Green, 2 PC Amber

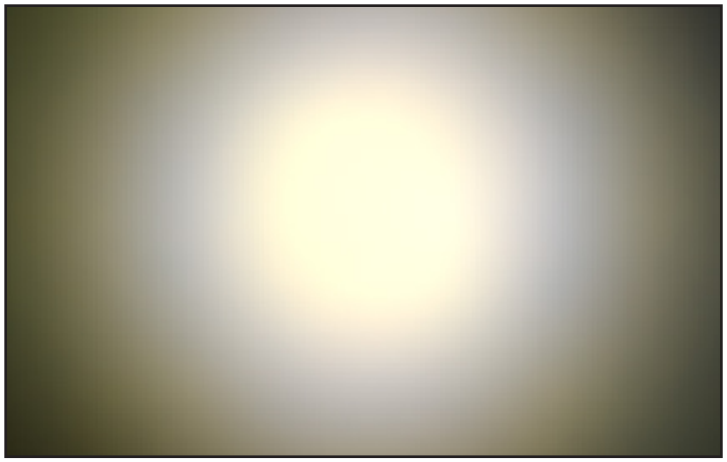
PLL2066NASR – 9-LED Cluster, 6 colors



- **Efficiency: Over 85%**
- Full angle at 50% from maximum: ~ 16°
- Full angle at 10% from maximum: ~ 27°

PLL2066WISR – 9-LED Cluster, 6 colors





- **Efficiency: Over 80%**
- Full angle at 50% from maximum: ~ 28°
- Full angle at 10% from maximum: ~ 46°

Packaging PLL2066xxSR

Item	Quantity	Total Parts	Size (L*W*H)	G.W.
Package box	48 pcs per box	48 pcs	48*28*18 cm	4.50 Kg

48 Lenses / 1 Package box

1 Package box / 1 Outer Box

Packaging KEL2066A

Item	Quantity	Total Parts	Size (L*W*H)	G.W.
Package box	50 pcs per box	50 pcs	48*28*18 cm	3.00 Kg

50 Holders / 1 Package box

1 Package box / 1 Outer Box

Packaging KEL2066B

Item	Quantity	Total Parts	Size (L*W*H)	G.W.
Package box	200 pcs per box	200 pcs	48*28*18 cm	2.50 Kg

200 Holders / 1 Package

1 Package box / 1 Outer Box

Materials

Material	Top
SILICONE for Lens	-40°...150°C
PC for Holder	-40°...120°C

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.

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.

Disclaimer

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 specifications.
Should you require further information, please contact Khatod for advice. All lens testing must be subject to identical conditions as Khatod test condition. Khatod Optoelectronic, Milan, Italy, manufactures lenses for LEDs. Any other use of the lens shall void our liability and warranty. The lenses are an inert component to be used in the manufacture of various products. Our warranty and liability are limited only to the manufacture of the lens. You may not modify, copy, distribute reproduce, license or alter the lens and related materials of Khatod. Khatod does not warrant against damages or defects arising out of the use or misuse of the products; against defects or damage arising from improper installation, or against defects in the product or in its components. No warranty of any kind, expressed or implied, is made regarding the safety of the products. The entire risk as to the quality or performance of the product is with the buyer. In no event shall Khatod be liable for any direct, indirect, punitive, incidental, special, consequential damages, or any damages whatsoever arising out of or connected with the use or misuse of the product. Khatod shall not have any obligation with respect to the product or any part thereof, whether based on contract, tort, strict liability or otherwise. Buyer assumes all risks and liability from use of the product. The laws of Milan, Italy govern this product warranty and liability and you hereby consent to the exclusive jurisdiction and venue of courts in Milan, Italy in all disputes arising out of or relating to the use of this product. Production, marketing, distribution, sale of these products as well as their possible modifications and variations are only exclusive right of Khatod Optoelectronic. No company can perform any of these actions without written permission released by Khatod Optoelectronic. The information contained in this document is proprietary of Khatod Optoelectronic and may change without notice.