

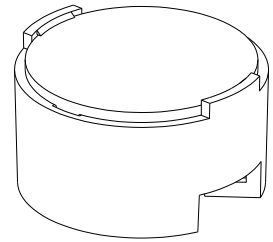
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CODE NUMBER: 110000000007

**SUBJECT: Secondary Optics for Power LEDs - KEPL1154EL
Lens Coupling - Output Luminous Intensity Measurement**



- **Typ. Illuminance@1m ~ 672 lux**
- High lighting efficiency
- Excellent luminous flux
- No vibration problems
- Free testing
- Superior optical engineering for a perfect uniform light distribution
- Innovative design
- Easy fixing system to the PCB
- Complying with UL94 Specifications



Typical Application are:

- Wall Washing
- Architectural lighting
- Lamps
- Most applications where a compact light source is required
- Any application requiring placement of LEDs in narrow or recessed spaces, as well as in diverse LED configurations

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 a high lighting efficiency.

The product we are proposing, is the result of Khatod's superior engineering. It helps in reducing the costs while meeting the most demanding lighting specifications and applications.

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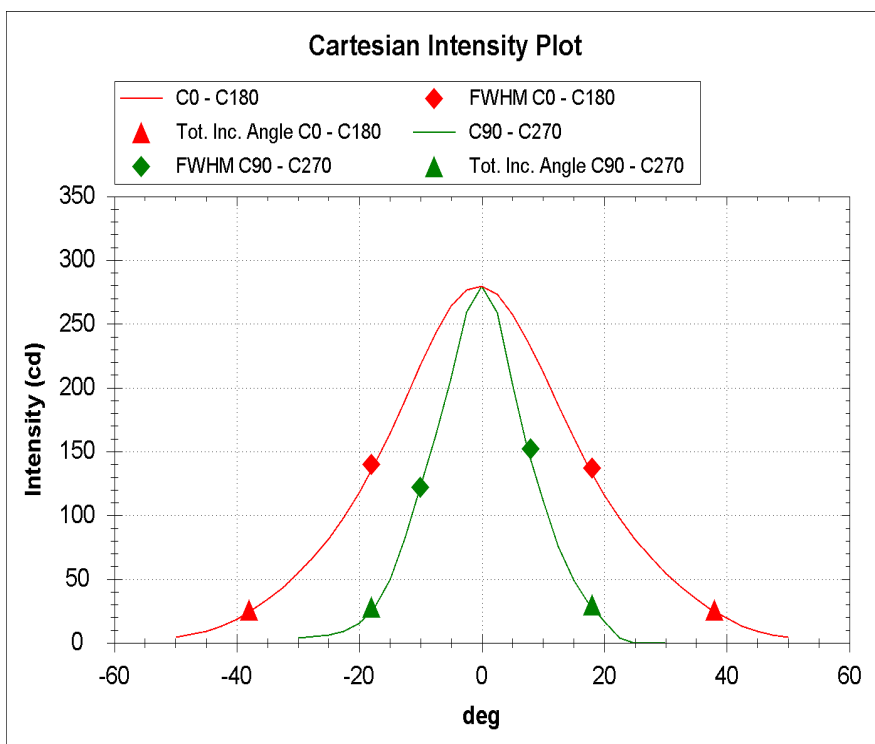
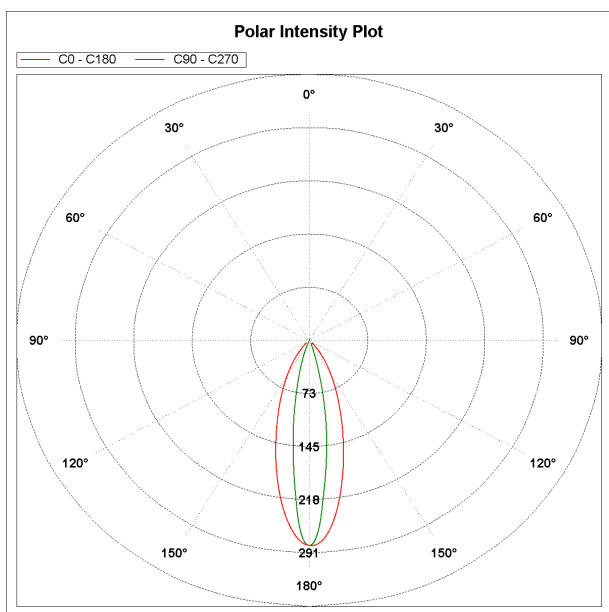
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Goniophotometer Type	KLX12M	Operator	SIMONE BASSI
Power Supply Type	ISO TECH ISP3303	Date	03/02/2011
LED Driver Type	////		

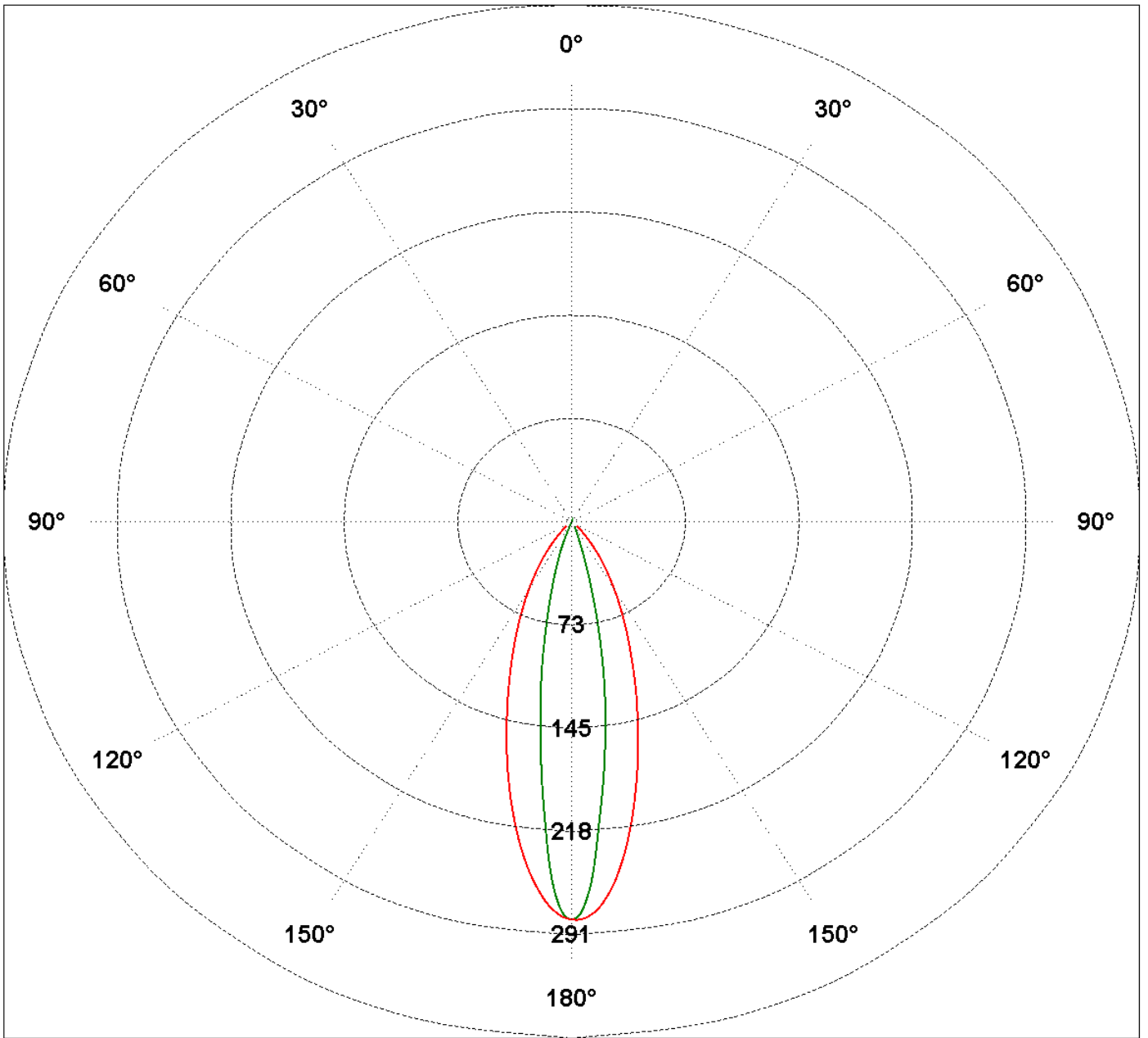
Lamp Model	////	Nominal Flux (lm)	130	Angle FWHM C Plane	36
Lens Model	KEPL1154EL	Total Flux (lm)	130	Angle FWHM γ Plane	18
LED Model	REBEL ES	Imax (cd)	280		
N. LED	1	Max Ill. @ Meas. Dist. (lux)	11.1	Total Incl. Angle C Plane	76
Rated Voltage (V)	2.9	Measurement Distance (m)	5	Total Incl. Angle γ Plane	36
LED Drive Current (mA)	350	Room Temperature (°C)	25		

Notes:
General Optical Measurement Tolerance: +/-10%



Polar Intensity Plot

— C0 - C180 — C90 - C270



CODE NUMBER: 11000000007

Figure C0-C180

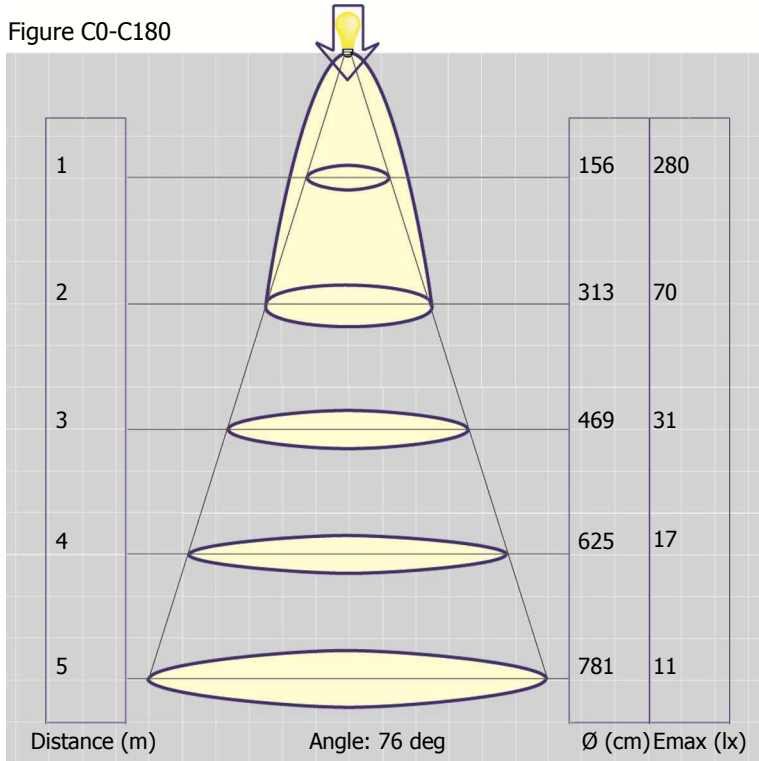
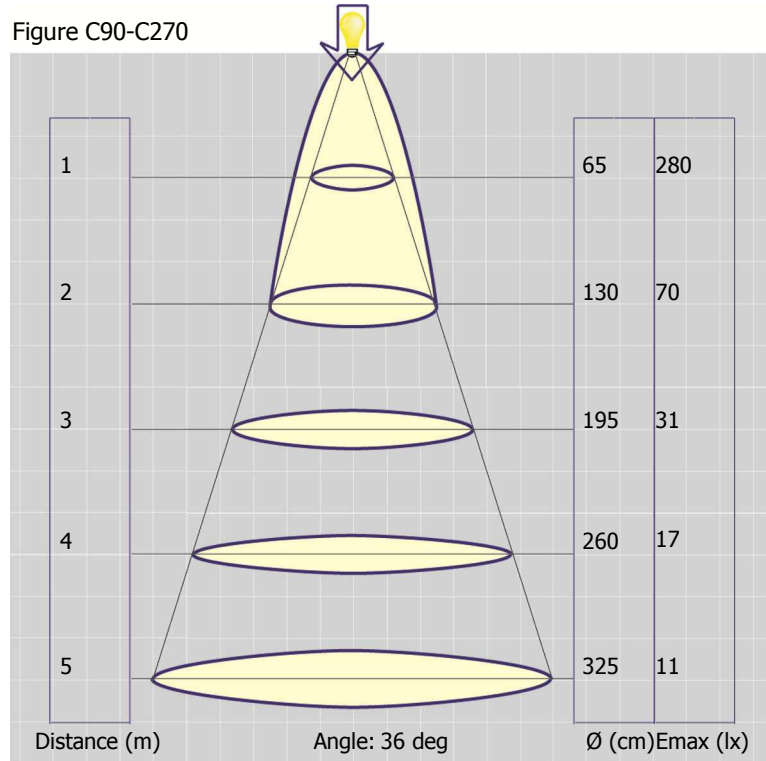
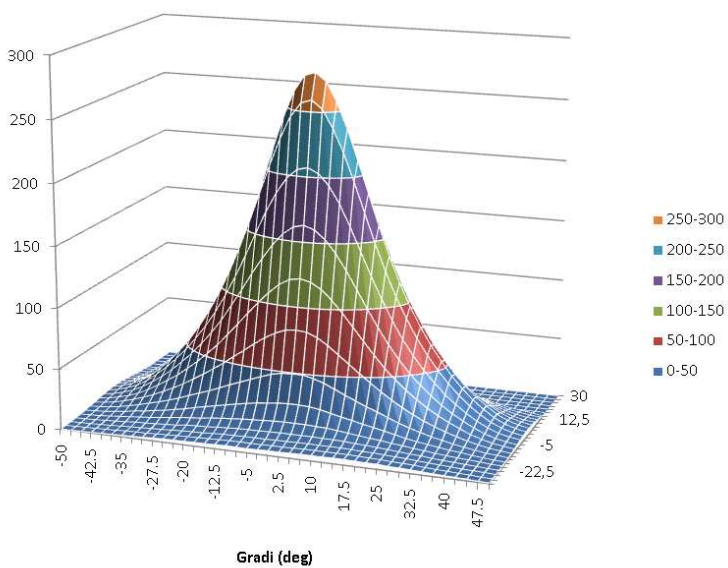


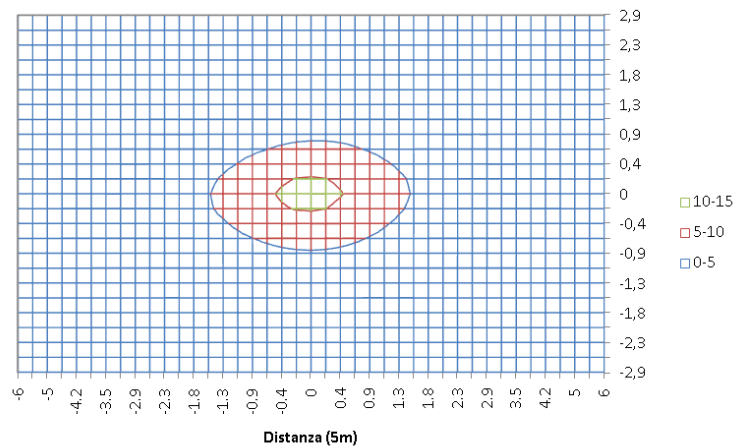
Figure C90-C270



Isocandela Diagram



Isolux Diagram

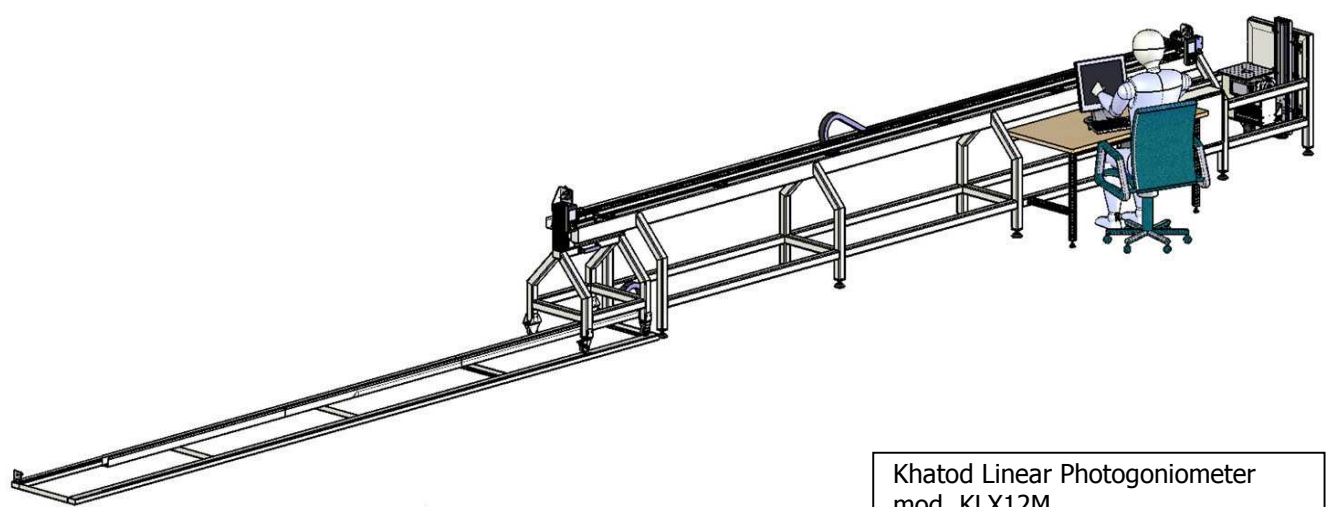
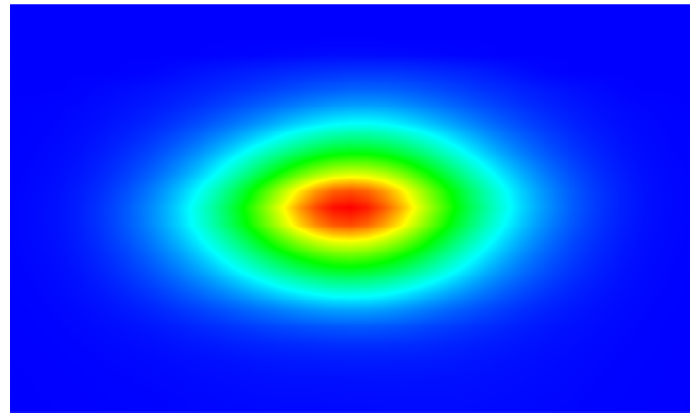


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Gray Scale Illuminance @ 5m Distance



False Colours Illuminance @ 5m Distance



Khatod Linear Photogoniometer
mod. KLX12M

Luminous Distribution Intensity Data

CODE NUMBER: 11000000007

C (deg) γ (deg)	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°	150°	160°	170°	180°	190°
0°	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280
5°	258	252	248	244	233	223	215	208	204	203	203	207	214	222	232	245	250	257	264	258
10°	212	205	192	174	156	140	129	120	114	112	112	116	123	133	148	166	188	206	217	210
15°	161	15.9	52.3	90.8	92.9	77.6	65.4	58	51.9	49	49.5	52.9	58.8	69.4	83.5	102	124	150	164	158
20°	116	14.8	44.2	5.37	43.6	32.1	28.4	23.2	19.1	17.3	17.6	20.1	23.8	30.6	41.2	56.9	77	99.8	118	109
25°	81.5	12.6	33.6	13.5	9.05	9.62	6.58	1.83	0.54	0	0.54	1.68	5.4	12.7	19.4	29.4	45.5	64.1	81.5	73.9
30°	55	9.89	23.5	12.3	8.6	0.29	0	0	0	0	0	0	0	0.72	8.24	14.7	25.5	39.7	54.5	48.5
35°	34.3	7.05	15	8.32	0	0	0	0	0	0	0	0	0	0	0	7.06	13.7	23.4	34	29.6
40°	19.3	4.56	8.64	0.04	0	0	0	0	0	0	0	0	0	0	0	0.14	6.63	12.2	18.5	16.1
45°	9	2.47	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	2.42	5.83	9.25	7.83
50°	4.5	1.26	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0.22	2.66	4.25	3.82
55°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90°	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

200°	210°	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°	330°	340°	350°
280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280
252	248	236	227	219	212	208	207	207	211	216	223	231	242	246	251
196	177	161	147	136	128	123	122	123	128	135	145	158	172	189	203
137	117	97.9	81.5	67.7	58.1	51.7	49.3	52.1	58.4	67.2	79.8	95.5	92.4	51.4	15.6
90.1	70.5	51.5	35.1	24.7	19.5	16.2	15.3	16.7	20.3	25	29.9	43.3	5.48	44.1	14.5
57.2	39.4	23.7	14.3	9.61	7.55	6.43	6.25	6.86	8.1	10.5	8.61	8.3	13.5	33.6	12.1
34.7	20	10.7	6.19	4.76	4.2	3.5	3.75	4.2	4.97	6.01	2.2	8.97	11.5	23.5	9.34
19.5	9.35	4.64	3.53	0	0	0	0	0	0	0	0.01	1.79	7.88	14.8	6.65
10	4.61	2.62	0	0	0	0	0	0	0	0	0	3.19	0.83	8.52	4.32
4.44	2.21	1.52	0	0	0	0	0	0	0	0	0	0.68	1.34	0.48	2.34
1.95	0.92	0	0	0	0	0	0	0	0	0	0	0	1.19	0.53	1.22
0	0.24	0	0	0	0	0	0	0	0	0	0	0	0.71	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Lens characteristics

Parameter	Symbol	Rating	Unit
Lens Material	PC Optics	--	--
Holder Material	PC	--	--
Operating Temperature	Topr	-40 to +120	°C
Storage Temperature	Tstg	-40 to +120	°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

Khatod SRL, 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 SRL. Khatod SRL 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 SRL 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 SRL 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.

