

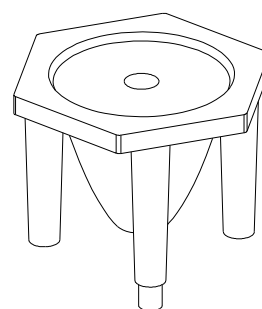
Via Monfalcone 41
20092 Cinisello Balsamo (Milano) – Italy
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CODE NUMBER: 110000000003

SUBJECT: Secondary Optics for Power LEDs - PL115040
Lens Coupling - Output Luminous Intensity Measurement



- **Typ. Illuminance@1m ~ 413 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
- NJC Technology
- 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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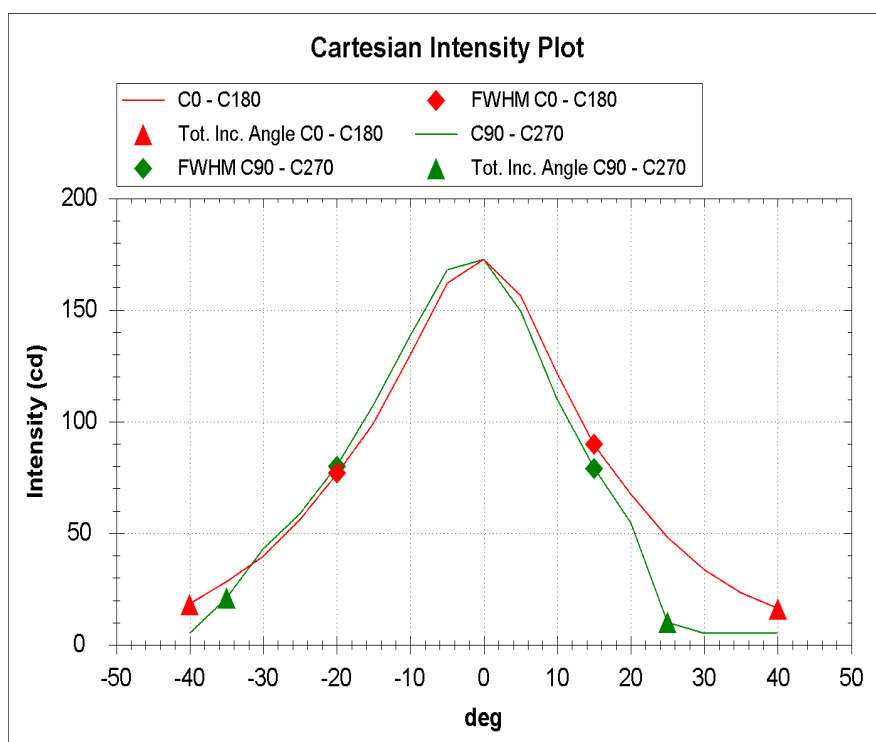
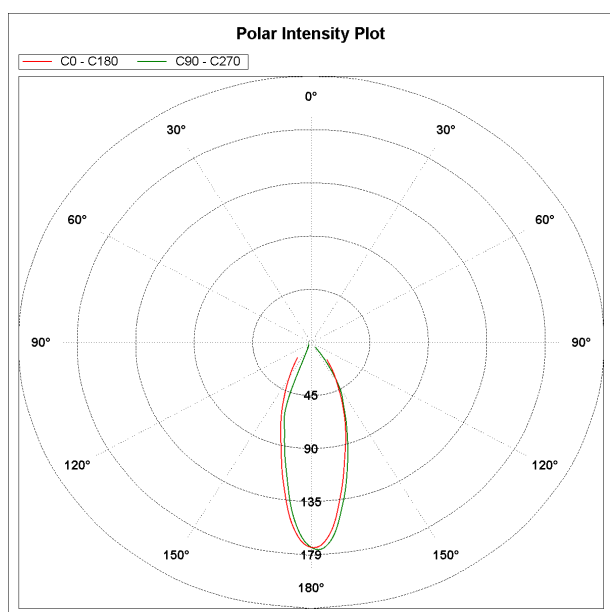
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Goniophotometer Type	KLX12M	Operator	SIMONE BASSI
Power Supply Type	ISO TECH ISP3303	Date	14/02/2011
LED Driver Type	////		

Lamp Model	////	Nominal Flux (lm)	130	Angle FWHM C Plane	35
Lens Model	PL115040	Total Flux (lm)	130	Angle FWHM γ Plane	35
LED Model	REBEL ES	Imax (cd)	172		
N. LED	1	Max Ill. @ Meas. Dist. (lux)	6.9	Total Incl. Angle C Plane	80
Rated Voltage (V)	2.9	Measurement Distance (m)	5	Total Incl. Angle γ Plane	60
LED Drive Current (mA)	350	Room Temperature (°C)	25		

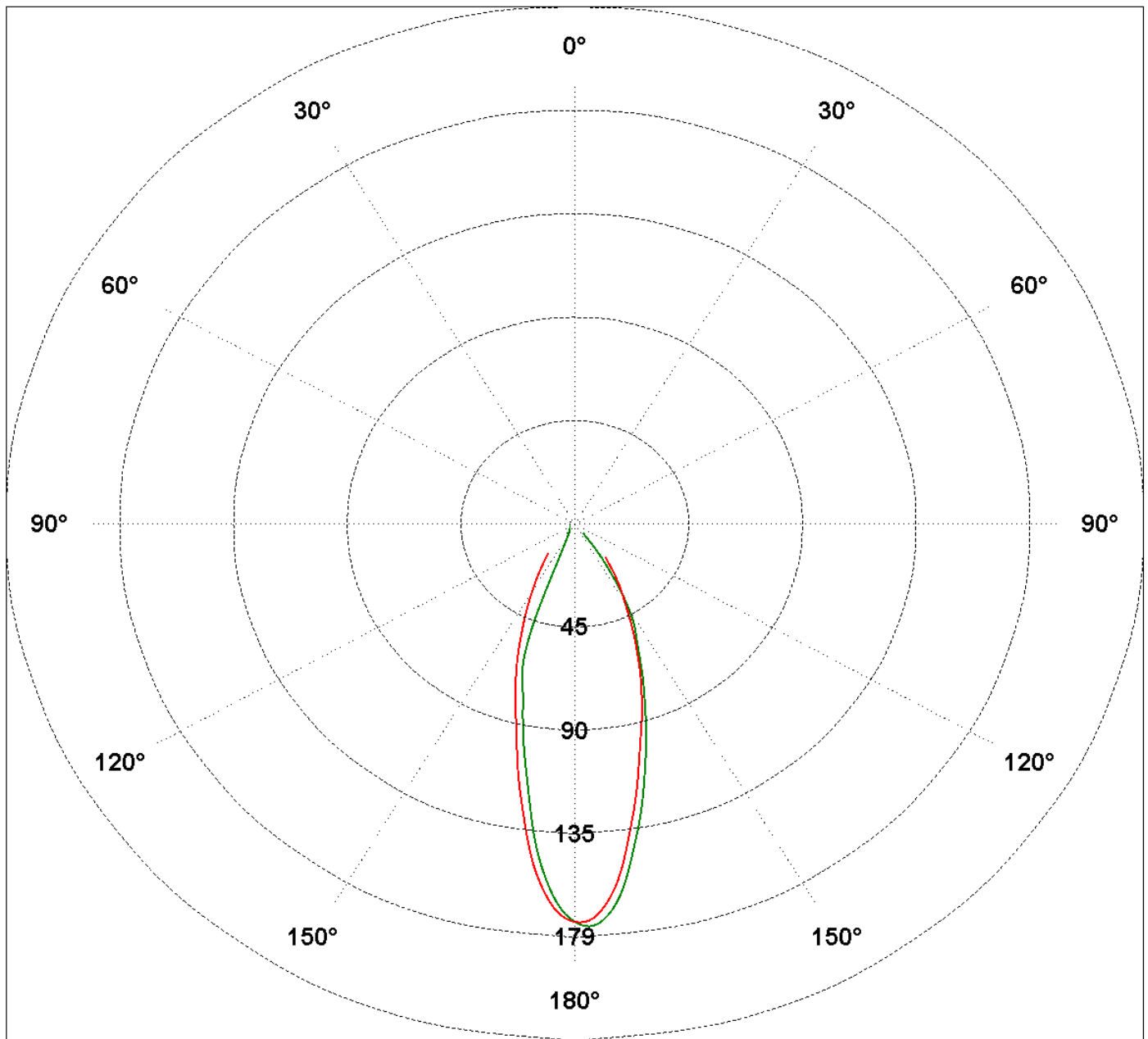
Notes:

General Optical Measurement Tolerance: +/-10%



Polar Intensity Plot

— C0 - C180 — C90 - C270



CODE NUMBER: 110000000003

Figure C0-C180

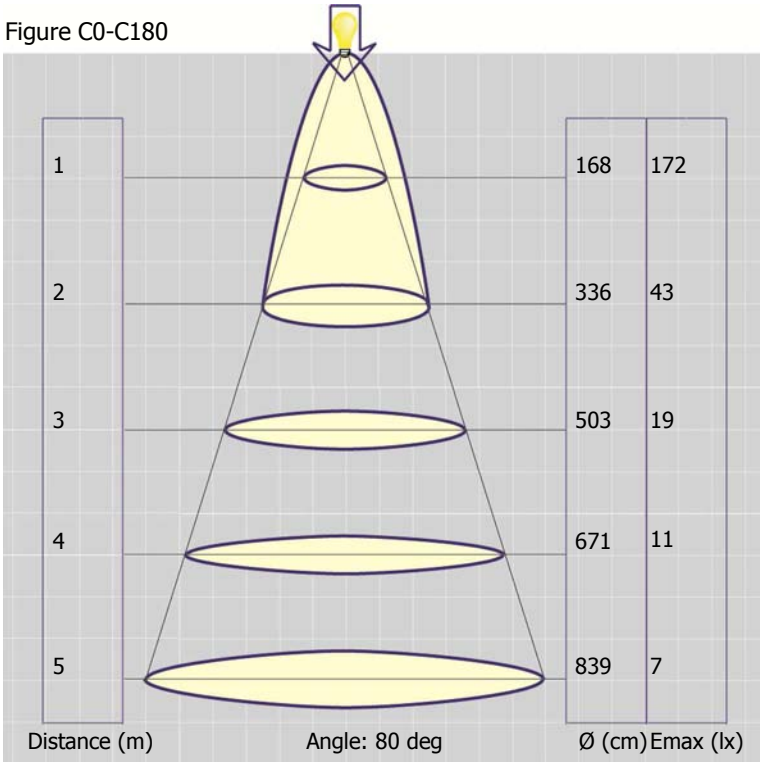
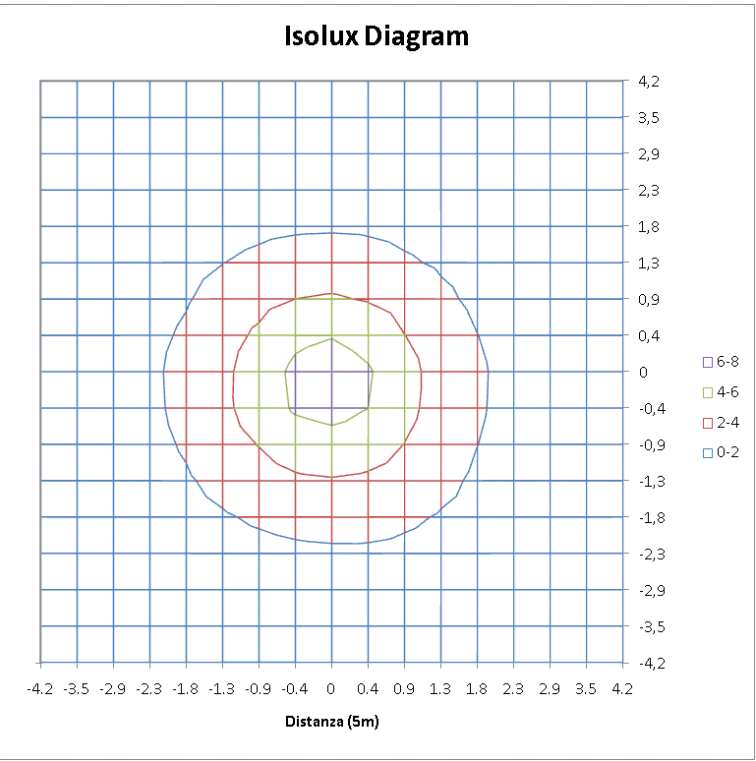
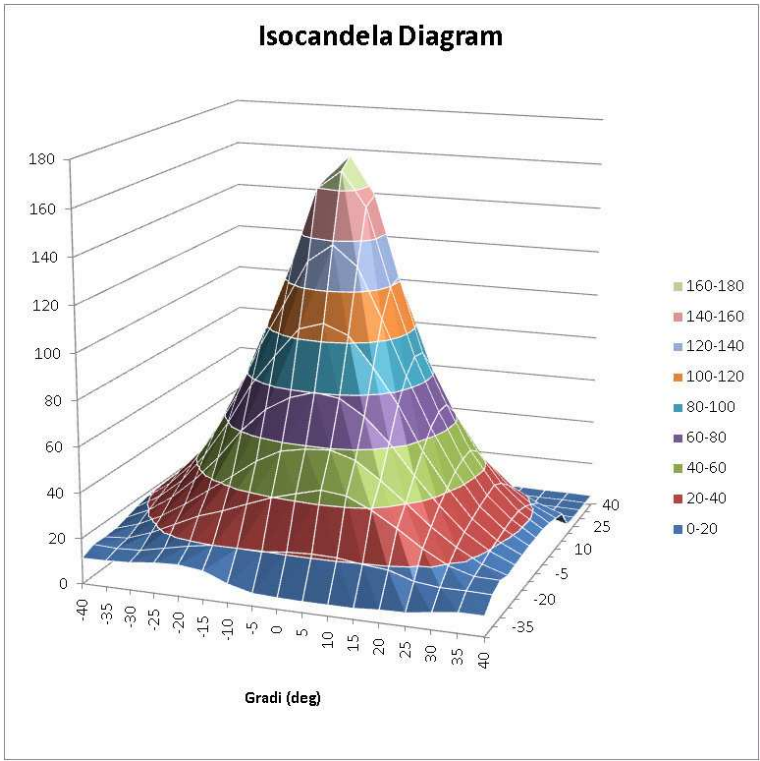
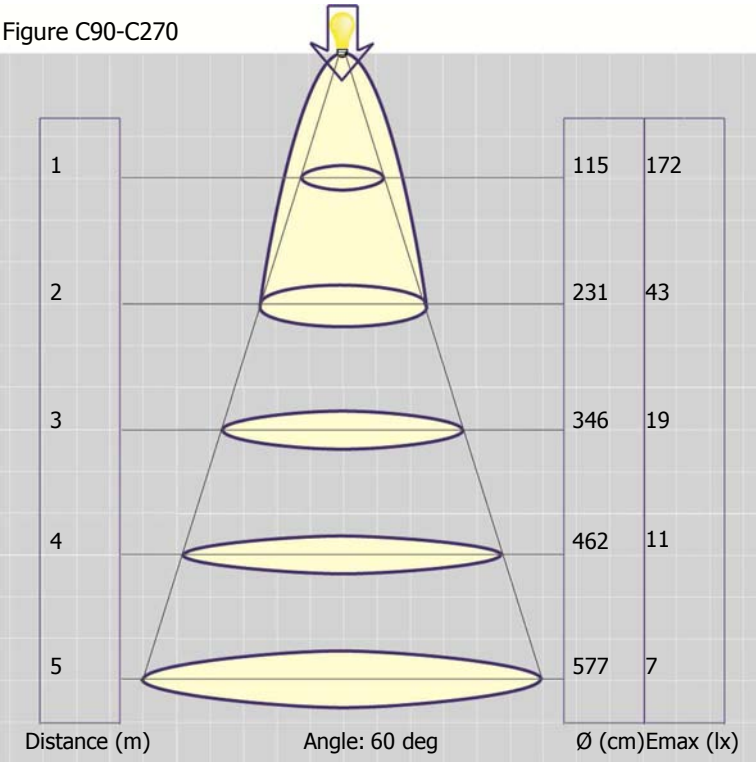
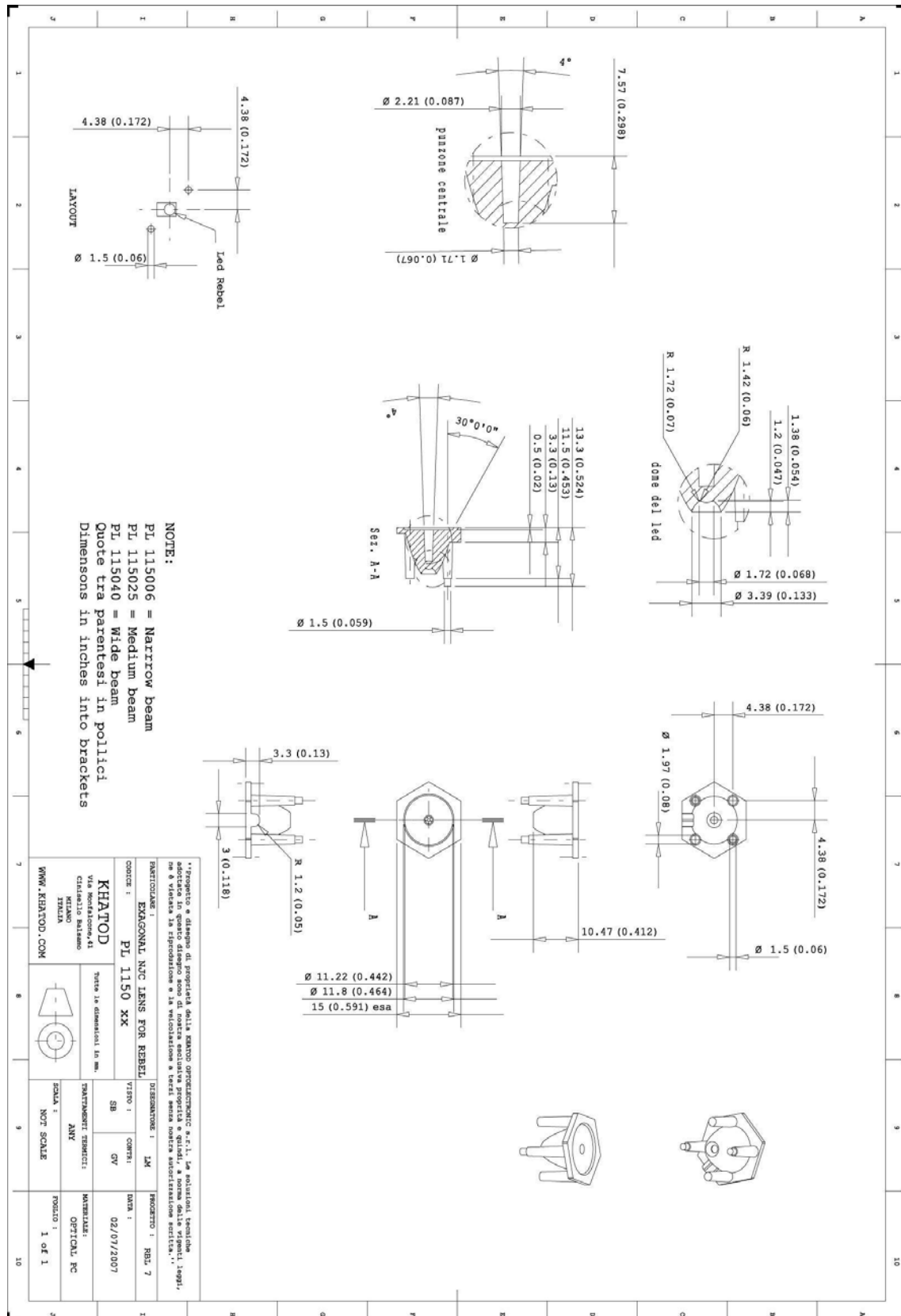


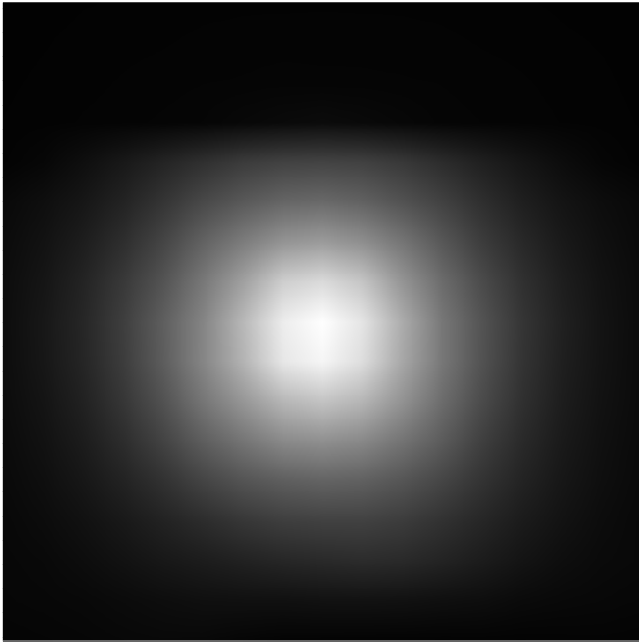
Figure C90-C270



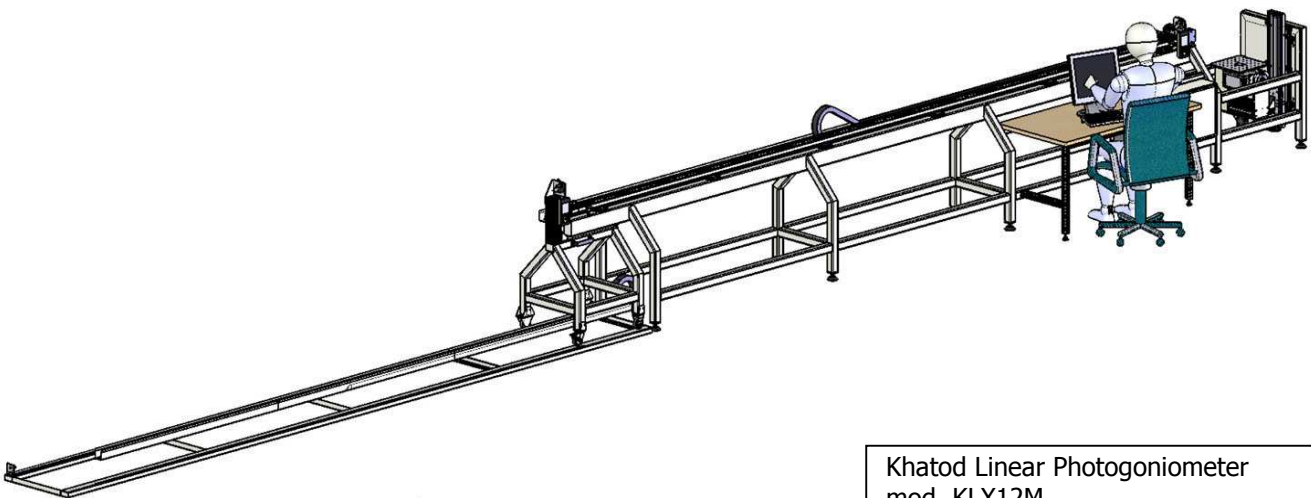
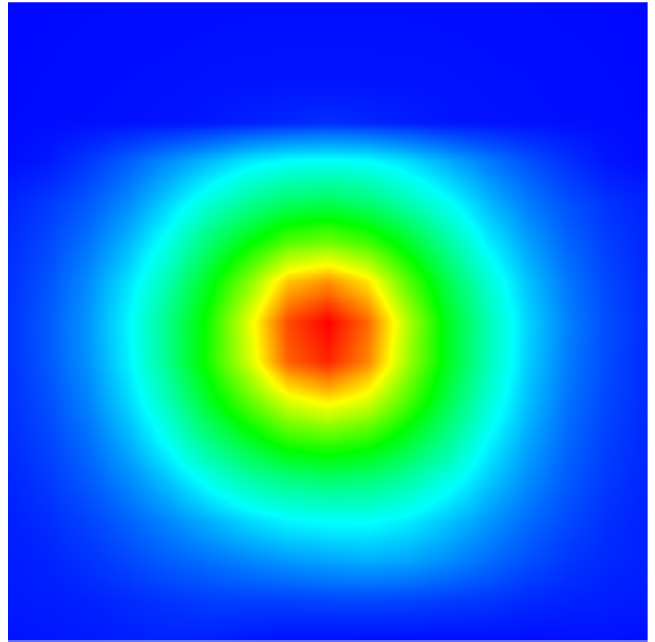


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Gray Scale Illuminance @ 5m Distance



False Colours Illuminance @ 5m Distance



Khatod Linear Photogoniometer
mod. KLX12M

Luminous Distribution Intensity Data

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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°	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173
5°	157	153	151	148	147	146	146	146	148	150	149	148	149	150	151	153	156	159	162	162
10°	122	117	115	115	113	112	111	109	108	110	110	112	116	117	119	122	123	126	130	130
15°	89.5	86.8	85.9	83.8	82.6	81.1	79.5	79	78	79.3	79.6	82.2	83.7	86.2	89	91.8	94.9	96.2	99.3	102
20°	67.5	64.6	62.3	60.4	59.4	57.6	56.6	55.8	55	54.5	55.4	57.7	60.6	63.1	66.4	68.4	70	72.6	76.8	77.9
25°	48.3	46.3	44.2	42.3	41.1	39.5	30.9	19.9	12.1	10	12.3	20.8	33	43.4	46.3	48.2	50.5	53.9	56.3	57
30°	33.8	32.3	30.7	29.1	26.6	15.5	5	5.6	5.31	5	5.55	5.78	5.4	17.3	30.5	32.6	35.2	38.1	39.5	40.1
35°	23.3	22.4	21.2	17.9	11.9	4.75	4.88	5	5	5	5.02	5	4.88	4.83	13.6	20.6	24.4	26.4	28.3	28.4
40°	16.3	15.7	15.1	7.99	4.5	4.71	4.75	5	5	5	5	5	4.75	4.72	4.69	9.57	17	18.4	18.5	19.3
45°	0	0	0	4.71	4.5	4.55	4.75	0	0	0	0	0	4.75	4.73	4.51	5.26	0	0	0	0
50°	0	0	0	0	4.34	4.5	0	0	0	0	0	0	0	4.64	4.5	0	0	0	0	0
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°
173	173	173	173	173	173	173	173	173	173	173	173	173	173	173	173
162	162	163	163	164	165	167	168	166	163	161	159	158	157	156	156
133	137	137	137	139	137	137	139	136	136	136	133	131	129	124	122
106	106	107	107	107	108	107	107	106	108	106	104	102	98.3	95.6	91.4
79.5	81.6	82.5	82.2	81.7	80.6	79.6	80.3	80.7	81.6	81.8	80.7	78	74.8	71.2	68.7
58	58.8	59.8	60.4	59.6	58.8	58.6	58.8	60.9	62.2	62.1	61	57.7	54.3	51.5	49.1
40.8	41.5	42.1	41.9	41.1	41.1	41.1	42.8	46.7	48.3	46.9	45.2	42.5	38.8	36	33.8
28.3	28.6	29.5	29.8	29.1	25.9	21.8	21	24	29.8	35	33.4	30.9	27.4	25.2	23.8
20.1	20.5	20.8	21.4	19	15.5	8.18	5	6.77	12.2	19.8	23.4	22.4	20.3	18.3	16.8
0	15.3	15.3	14.7	14.2	0	0	0	0	0	7.97	15	17	15.5	0	0
0	0	13.7	12.4	0	0	0	0	0	0	0	9.97	15.1	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	--	--	--
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

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