



# Rotation Luminaire Goniospectroradiometer ( LSG-1700CCD )

## Brochure

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**Leader in Lighting & Electrical Test Instruments**

Rev. 5/27/2025

# Rotation Luminaire Goniophotometer

## 1. System Configuration

**The quotation includes all the following items:**

**A. Goniophotometric System:**

- Goniometric Rotating Console
- Class 1 Photo Detector
- Line Laser System for Calibrating
- English Measuring Software

**B. CCD Spectroradiometer**

**C. Adjustable Tripod for CCD Spectroradiometer**

**D. SLS-250W DC Distribution Standard Lamp**

**E. DC3010 DC Power Source**

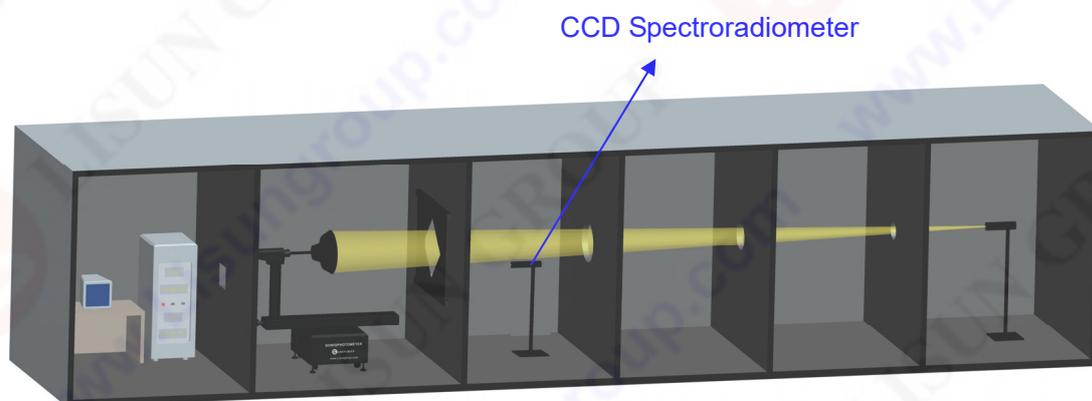
**F. LS2012 Digital Power Meter:** High Accuracy to measure AC and DC voltage, current, power and PF

**G. AC Power Source to give a stably AC Output for luminaries test**

**H. CASE-19IN 19inch Standard Instruments Cabinet**

**I. Three sets of multi-function luminaries clamps**

**J. Oversea Delivery Packing:** all of the instruments and accessories will be packed to meet long distance sea delivery



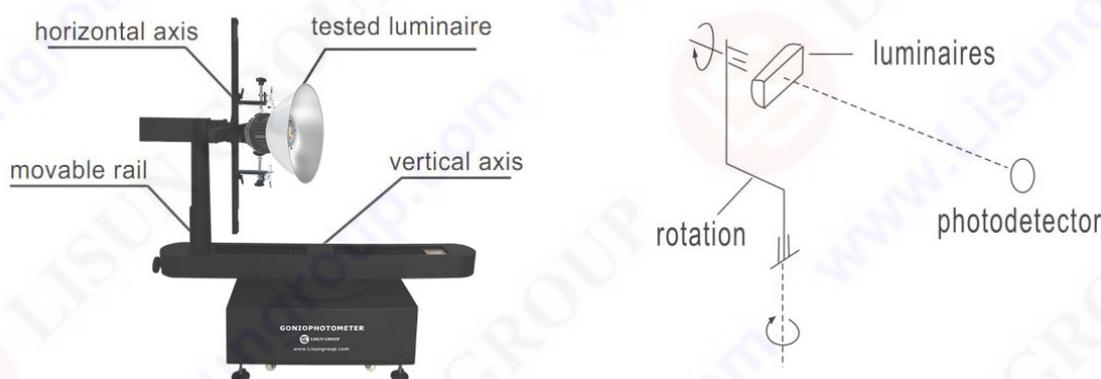
## Full View for Rotation Luminaire Goniophotometer

## 2. Working Principle

LSG-1700CCD Goniophotometric System carries out measuring methods of fixed location and rotating luminaires. The measured luminaire is installed on the rotating supporter, the center of which is in line with the rotating supporter center with the help of Laser sight. The fixed photometry detector is testing the luminous intensity in various horizontal directions, while the light source rotating. The mechanical equipment allows turning the tested luminaires around a vertical axis and a horizontal axis. When tested luminaires turn around horizontal axis, the detector which is at the same level with rotating table will measure the intensity of each direction at this surface. When rotating with vertical axis, the detector will measure the intensity at the vertical surface. The vertical and horizontal axis can be rotated continuously at  $-180^{\circ} \sim +180^{\circ}$ . According to the measurement requirements, the system can be operated in C- $\gamma$  coordinates. When getting intensity distribution data, PC will calculate photometric parameters automatically.

### LSG-1700CCD Single pillar structure (C- $\gamma$ coordinate and Conic coordinate)

The single column structure will be gotten when the assistant column is taken down from double columns structure. This type is applied to fixed tube lamp, spot lamp etc. The axis radiation of lamp and the horizontal of rotating supporter is coaxial.



## 3. System Functions

LSG-1700CCD Goniophotometer is for luminous intensity distribution measurements with facility for turning the light source. It is for industrial laboratory measurements the photometric data of luminaires. LSG-1700CCD is used to measure photometric parameters of luminaires for LED road lighting fixture, room lighting fixture and projecting lighting fixture, such as spatial intensity distribution curve, spatial iso-intensity curve, intensity distribution curve on each section (represent by right-angled coordinates or polar coordinates, luminance limitation curve, luminaire efficiency, glare grade, effective beam angle, upward luminous flux ratio, downward luminous flux ratio, total luminous flux, effective luminous flux, utilization factor and electric parameters voltage, current, wattage, power factor and etc. The measured data meets IES standard format and can be applied for lighting design by lighting design software. The measurement system fully satisfies the requirement of lighting design.



### 4. Specifications

- Meets the requirements of CIE, IEC, IES LM-79 & GB standards
- Reaching many measurement ways C-Gamma
- The tested luminaries rotates around an angle of (γ)±180°(or 0-360°) and the tested luminaries rotates around itself with an angle of (C)±180°(or 0-360°)
- Luminosity Testing Range: Illuminance 0.001lx~10,000lx; Light Intensity 1.0cd ~ 10<sup>7</sup>cd(detector)
- Accuracy of photometry: Class 1
- Testing Accuracy: 3%(Under Standard lamp); Stray Light: less than 0.2%
- The accuracy of angle: 0.2°
- Test CCT and Spectrum Distribution Test for the lamp, the data can be export be excel
- Spectral Range Wavelength: 380~780nm; Wavelength Accuracy: ±0.2nm
- Accuracy of Chromaticity Coordinates x, y: ±0.0015
- Correlated Color Temperature Range: 1000~100000K, Resolution: 1K
- English version software can run in Win7, Win8 or Win 10

Max Size for the Testing Lamp (mm)	The max size for the Testing Lamp		Max Weight
	C-Gamma Test with one Pillar	B-Beta Test with Two Pillars	
<b>LSG-1700CCD</b>	1600*550	N/A	40kg

### 5. Laboratory Requirements

- The Dimension of Dark Room for Goniometric Rotating Console and Photometric Light Patch: W3.5m\*H2.5m\*L8m (Other size please check with LISUN engineer)
- Operator Room for controlling cabinet, PC and printer Dimension: W3.0m\*L3m
- The wall, ceiling and floor should be all coated with dull black paint or be covered by black cloth and black carpet.
- Air-conditioner should be set in the dark room to control the temperature around lamps to the standard value upon the CIE requirements

- LISUN engineer dept will submit the Lab Design support documents according to the customer's lab size after the formal purchase order was confirmed



## 6. Typical overseas market customers:

There are many world famous company and lab institute choose Lisun Goniophotometer, Please get the reference customers' information from Lisun Group Oversea Sales Dept.

## 7. Design Standard of Device

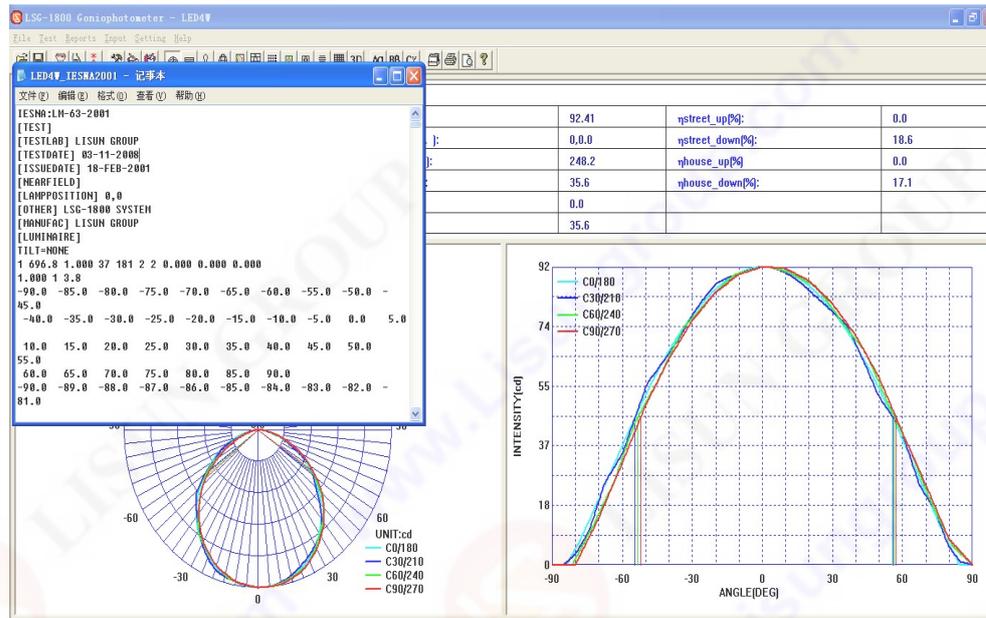
The construction, technical parameter, test & operate steps as well as data processing software of LSG-1700CCD Goniospectroradiometer meet the following requirements:

- 3.1 CIE Pub. NO.70, "The Measurement of Absolute Luminous Intensity Distributions"
- 3.2 CIE DIV. II -TC10, "Photometry of Luminaires"
- 3.3 IES LM-35-1989, "IES Approved Method for Photometric Testing of Floodlights"
- 3.4 IES LM-31, "IES Approved Method for Photometric Testing of Roadway Luminaires"
- 3.5 IES-LM-79, "Electrical and Photometric Measurements of Solid-State Lighting"
- 3.6 GB/T 9467-1988, "Luminosity Test of Indoor Luminaires"
- 3.7 GB/T 9468-1988, "Luminosity Test of Street Luminaires"
- 3.8 IES 61341 "Method of Measurement of Center Beam Intensity Angle of Lamp"
- 3.9 CIE Pub.NO.76, "Photometry-the CIE System of Physical Photometry"

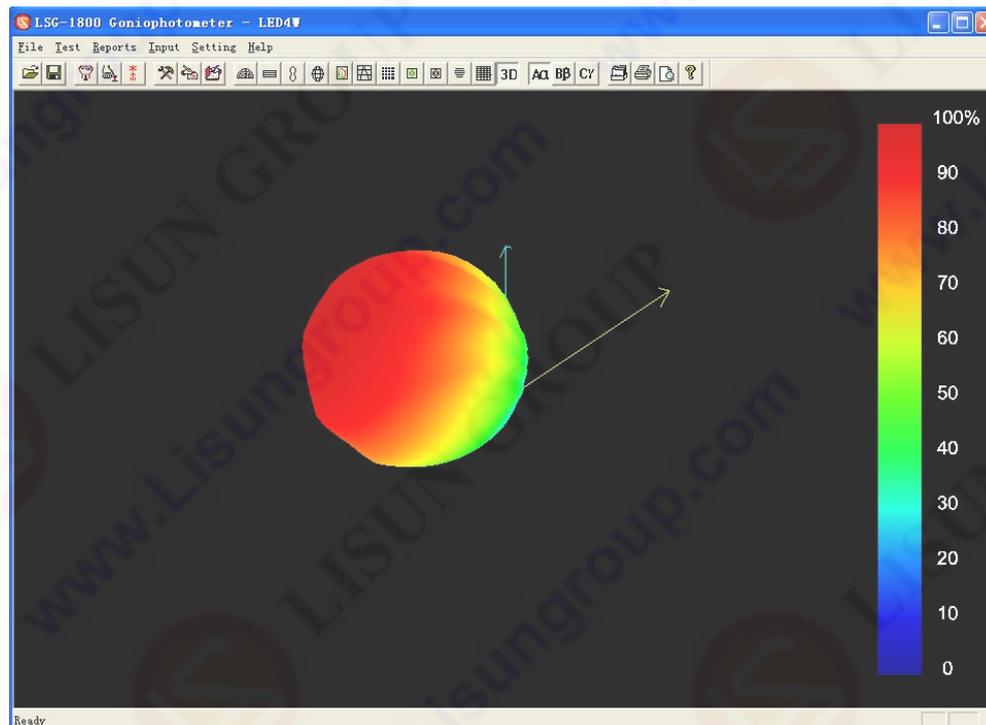
## 8. Application Software

All control of the LSG-1700CCD Goniospectroradiometer operations can be realized by the software, including gonophotometer movement, data acquisition and processing, real-time display on screen, report print and etc, thus enabling the measurement easy and secure. It can export IES/LDT files for the luminaire design software such as Dialux

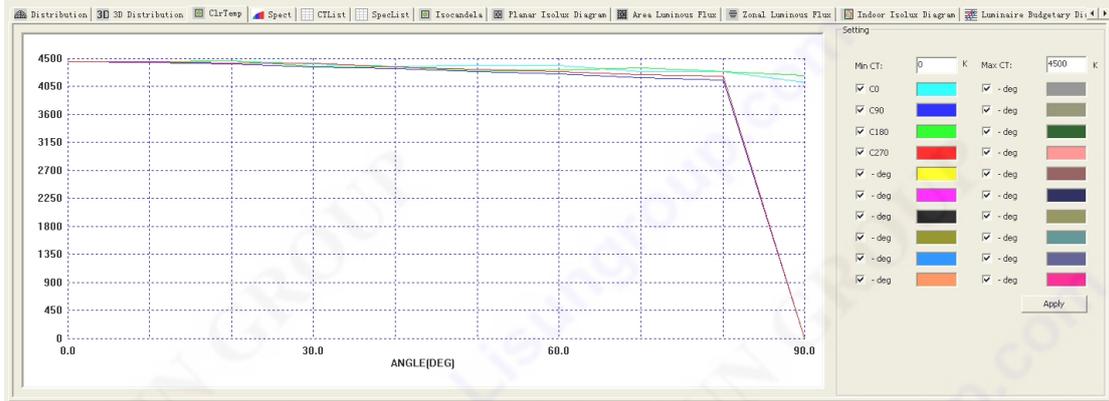
## Export the IES standard format document



## 3D Graph Distribution



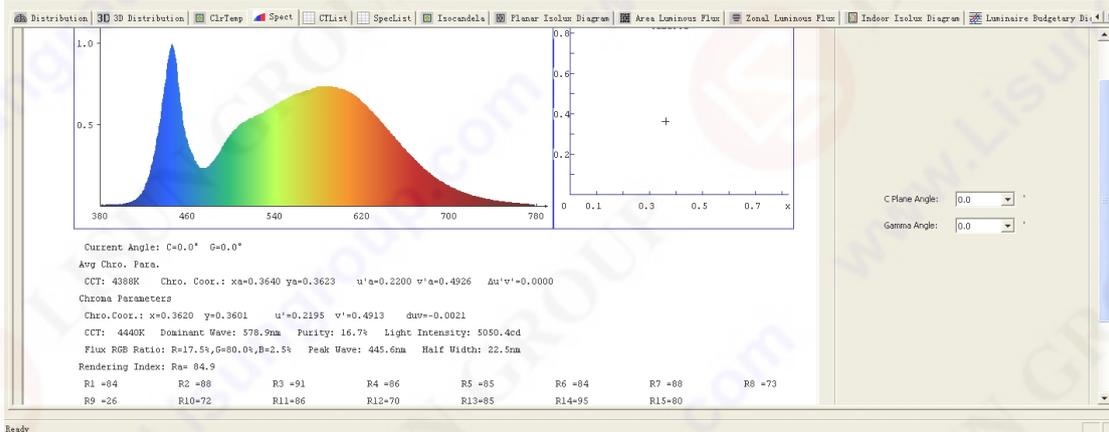
### CCT Distribution Test:



### CCT List:

Gamma/C	C0 CCT (Δu, Δv)	C30 CCT (Δu, Δv)	C180 CCT (Δu, Δv)	C270 CCT (Δu, Δv)
0.0deg	4440K 0.0014	4442K 0.0015	4440K 0.0014	4442K 0.0015
10.0deg	4431K 0.0011	4431K 0.0012	4441K 0.0015	4444K 0.0016
20.0deg	4402K 0.0022	4403K 0.0006	4460K 0.0021	4422K 0.0010
30.0deg	4402K 0.0006	4398K 0.0008	4370K 0.0005	4418K 0.0008
40.0deg	4385K 0.0005	4373K 0.0013	4355K 0.0009	4361K 0.0007
50.0deg	4382K 0.0004	4291K 0.0030	4299K 0.0026	4319K 0.0020
60.0deg	4377K 0.0004	4245K 0.0042	4308K 0.0022	4294K 0.0030
70.0deg	4284K 0.0028	4188K 0.0059	4344K 0.0011	4240K 0.0044
80.0deg	4282K 0.0028	4143K 0.0074	4260K 0.0033	4207K 0.0053
90.0deg	4117K 0.0079	OK 0.5994	4227K 0.0050	OK 0.5994

### Spectrum Distribution Test:



### Spectrum List:

No.	C(deg)	Gamma(deg)	CCT(K)	x	y	u*	v*	Ir(cd)	Ra	Peak Wave(nm)	Half Width(nm)	Domain Wave(nm)	Peak Sig	Dark Sig	
1	0.0	0.0	4440	0.3620	0.3601	0.2195	0.4913	0.0014	5050.4	85	445.6	22.5	578.9	61899	4821
2	0.0	10.0	4431	0.3623	0.3595	0.2195	0.4915	0.0014	5051.6	85	445.4	22.5	578.8	61941	4821
3	0.0	20.0	4402	0.3611	0.3587	0.2194	0.4905	0.0022	4962.7	85	446.0	22.5	579.1	61197	4821
4	0.0	30.0	4402	0.3634	0.3612	0.2200	0.4920	0.0006	4498.9	85	445.6	22.5	578.0	56377	4821
5	0.0	40.0	4395	0.3646	0.3629	0.2203	0.4928	0.0005	2631.6	85	446.5	22.8	578.9	50194	4821
6	0.0	50.0	4383	0.3640	0.3616	0.2202	0.4923	0.0004	3452.9	85	446.5	22.5	578.0	44718	4821
7	0.0	60.0	4377	0.3643	0.3619	0.2203	0.4924	0.0004	2581.8	85	445.9	22.5	579.1	34825	4821
8	0.0	70.0	4284	0.3682	0.3665	0.2211	0.4951	0.0028	1797.1	84	446.5	22.3	578.7	28091	4821
9	0.0	80.0	4282	0.3682	0.3665	0.2211	0.4952	0.0028	1320.5	84	446.7	22.5	578.7	20599	4821
10	0.0	90.0	4117	0.3757	0.3746	0.2228	0.4999	0.0078	605.7	84	446.5	22.5	578.4	12701	4821
11	90.0	0.0	4442	0.3619	0.3599	0.2195	0.4912	0.0015	5053.2	85	446.3	22.5	578.9	61820	4821
12	90.0	10.0	4431	0.3623	0.3603	0.2196	0.4914	0.0012	4945.2	85	446.5	22.5	578.9	60972	4821
13	90.0	20.0	4403	0.3633	0.3613	0.2199	0.4920	0.0008	4663.0	85	446.0	22.8	578.8	56155	4821
14	90.0	30.0	4398	0.3652	0.3634	0.2203	0.4932	0.0008	4240.6	85	446.5	22.5	578.8	53729	4821
15	90.0	40.0	4397	0.3660	0.3642	0.2205	0.4938	0.0013	2690.2	84	446.0	22.8	578.7	47449	4821
16	90.0	50.0	4291	0.3693	0.3669	0.2210	0.4964	0.0020	2062.3	84	446.5	22.8	578.6	36122	4821
17	90.0	60.0	4245	0.3700	0.3699	0.2213	0.4985	0.0042	1950.5	84	445.8	22.5	578.4	27832	4821
18	90.0	70.0	4188	0.3725	0.3715	0.2220	0.4991	0.0059	1016.1	84	446.0	22.5	578.4	17230	4821
19	90.0	80.0	4143	0.3747	0.3742	0.2223	0.4998	0.0074	372.7	84	445.8	21.4	578.2	9689	4821
20	90.0	90.0	0	0.0000	0.0000	0.0000	0.0000	0.5394	0.0	0	380.0	0.0	0.0	7507	4821
21	180.0	0.0	4440	0.3620	0.3601	0.2195	0.4913	0.0014	5050.4	85	445.6	22.5	578.9	61899	4821
22	180.0	10.0	4441	0.3619	0.3600	0.2195	0.4912	0.0015	5011.8	85	446.5	22.5	578.9	61463	4821
23	180.0	20.0	4460	0.3612	0.3588	0.2194	0.4905	0.0021	4772.8	85	445.6	22.5	579.1	59317	4821
24	180.0	30.0	4370	0.3630	0.3601	0.2201	0.4930	0.0005	4173.9	85	446.0	22.5	578.7	52749	4821
25	180.0	40.0	4355	0.3653	0.3637	0.2203	0.4934	0.0009	3776.4	84	446.5	22.5	578.7	46340	4821
26	180.0	50.0	4299	0.3671	0.3644	0.2208	0.4960	0.0028	2704.9	84	445.6	22.5	578.5	37230	4821
27	180.0	60.0	4308	0.3672	0.3657	0.2207	0.4947	0.0022	2239.3	84	445.6	22.5	578.6	31077	4821
28	180.0	70.0	4344	0.3657	0.3637	0.2205	0.4935	0.0011	1527.8	84	446.5	22.3	578.8	22906	4821
29	180.0	80.0	4200	0.3680	0.3666	0.2209	0.4952	0.0028	659.0	84	445.6	22.1	578.4	15359	4821
30	180.0	90.0	4227	0.3709	0.3705	0.2213	0.4974	0.0050	436.9	84	444.5	21.6	578.2	10622	4821
31	270.0	0.0	4442	0.3619	0.3599	0.2195	0.4912	0.0015	5053.2	85	446.3	22.5	578.9	61820	4821
32	270.0	10.0	4444	0.3618	0.3598	0.2195	0.4911	0.0016	5008.1	85	445.8	22.8	578.9	61503	4821
33	270.0	20.0	4422	0.3626	0.3606	0.2197	0.4916	0.0010	4784.4	85	446.5	22.8	578.9	59352	4821
34	270.0	30.0	4416	0.3629	0.3609	0.2198	0.4917	0.0008	4443.1	85	445.9	22.8	578.9	56500	4821
35	270.0	40.0	4381	0.3651	0.3634	0.2200	0.4939	0.0007	3834.5	85	446.5	22.5	578.7	49760	4821

The Next Page is the Test Report by the software

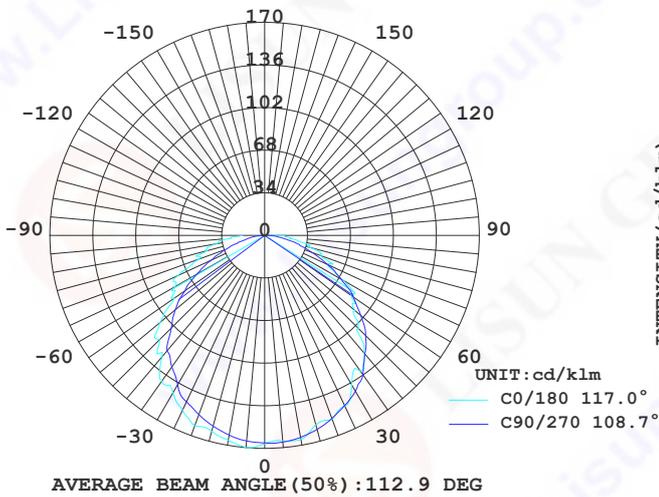
**STREETLIGHT PHOTOMETRIC TEST REPORT**

Report number:

MANUFACTURER:		Address:	
NAME: LED Street Lamp	TYPE:LED-L120W	WEIGHT:8kg	
SPECIFICATION:120W	DIMENSION: 750*350*85	SERIAL No.:LED-L120W-01	

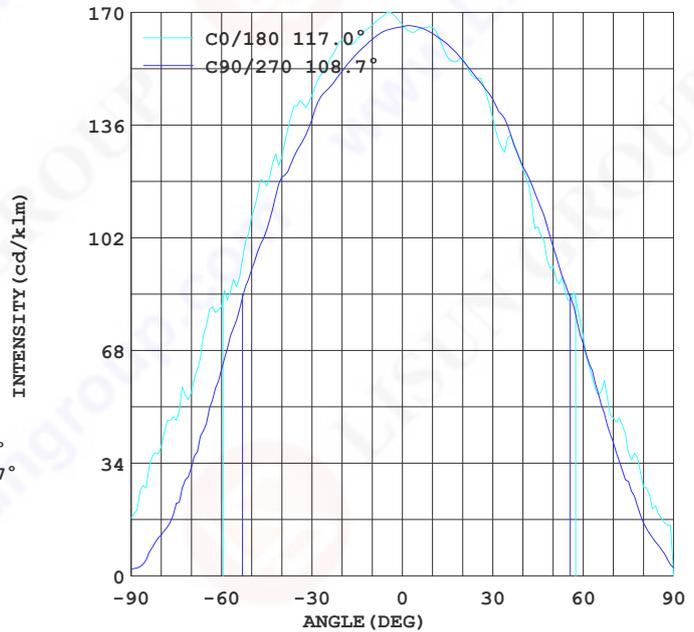
MODEL:	OSRAM	I <sub>max</sub> (cd/klm):	170.2	Effective Flux(lm):	487.0
NOMINAL POWER(W):	56	MAXIMUM(C, γ):	0, 4.0	EEI	1.298
RATED VOLTAGE(V):	220	EFFICIENCY(%):	49.3	Voltage(V)	220.0
NOMINAL FLUX(lm):	10659.4	η street_up(%):	0.0	Current(A)	0.264
TEST FLUX(lm):	10659	η street_down(%):	24.4	Power(W)	56.16
LAMPS QUANTITY:	1	η house_up(%):	0.0	Power Factor	0.966
TOTAL FLUX(lm/klm):	493.1	η house_down(%):	24.9	EFFICIENCY(lm/W)	8.8

INTENSITY DISTRIBUTION DIAGRAM  
IN C PLANS



INTENSITY DISTRIBUTION DIAGRAM  
IN C PLANS

LUMINOUS INTENSITY DISTRIBUTION



Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

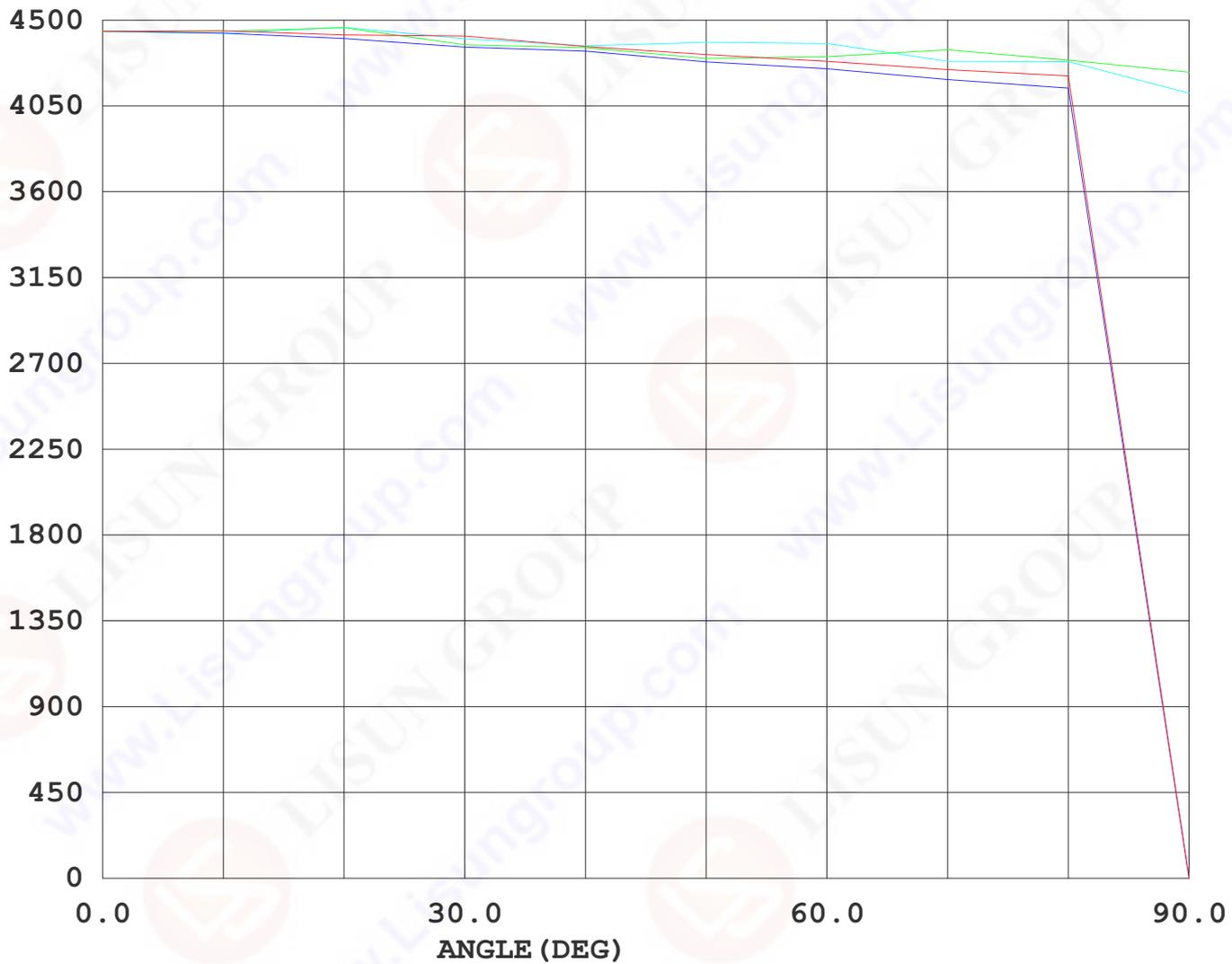
Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

### Color Temperature Distrib

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>

### COLOR TEMPERATURE DISTRIBUTION



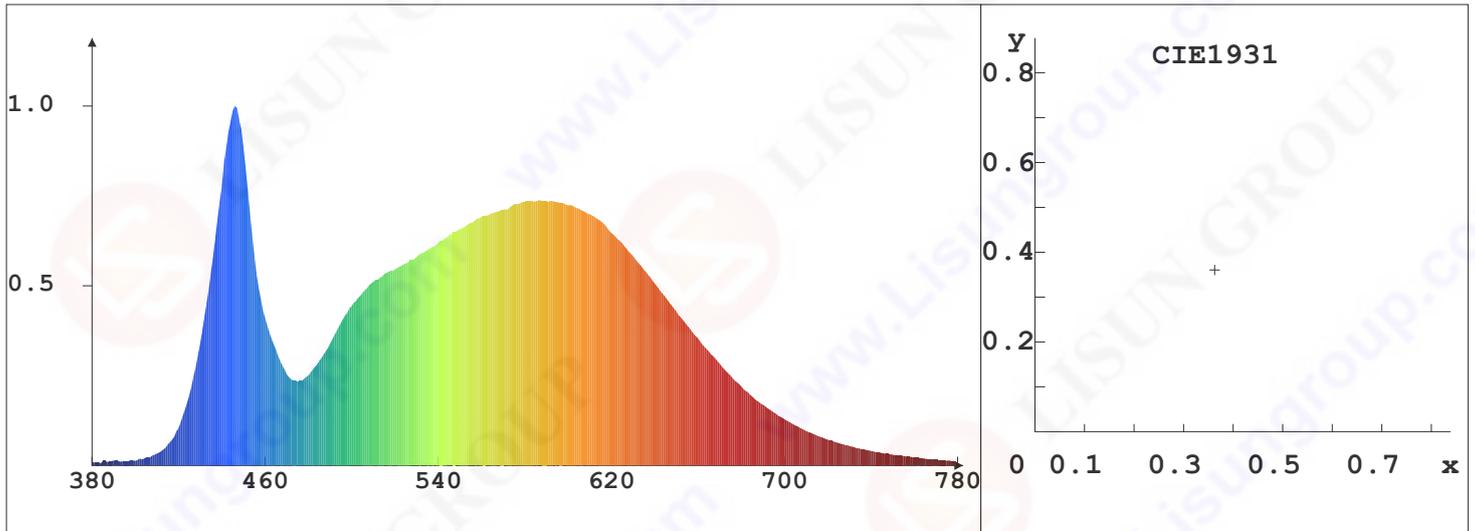
Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

### Spectrum Chart

Report number:

MANUFACTURER:	Address:	
NAME: LED Street Lamp	TYPE:LED-L120W	WEIGHT:8kg
SPECIFICATION:120W	DIMENSION: 750*350*85	SERIAL No.:LED-L120W-01



Current Angle: C=0.0° G=0.0°

Avg Chro. Para.

CCT: 4388K Chro. Coord.: xa=0.3640 ya=0.3623 u'a=0.2200 v'a=0.4926 Δu'v'=0.0000

Chroma Parameters

Chro.Coord.: x=0.3620 y=0.3601 u'=0.2195 v'=0.4913 duv=-0.0021

CCT: 4440K Dominant Wave: 578.9nm Purity: 16.7% Light Intensity: 5050.4cd

Flux RGB Ratio: R=17.5%,G=80.0%,B=2.5% Peak Wave: 445.6nm Half Width: 22.5nm

Rendering Index: Ra= 84.9

R1 =84 R2 =88 R3 =91 R4 =86 R5 =85 R6 =84 R7 =88 R8 =73

R9 =26 R10=72 R11=86 R12=70 R13=85 R14=95 R15=80

Instrument State

Scan Range: 380nm-780nm Integral Time: 2040.0mBeak Signal: 61899 Dark Signal: 4821

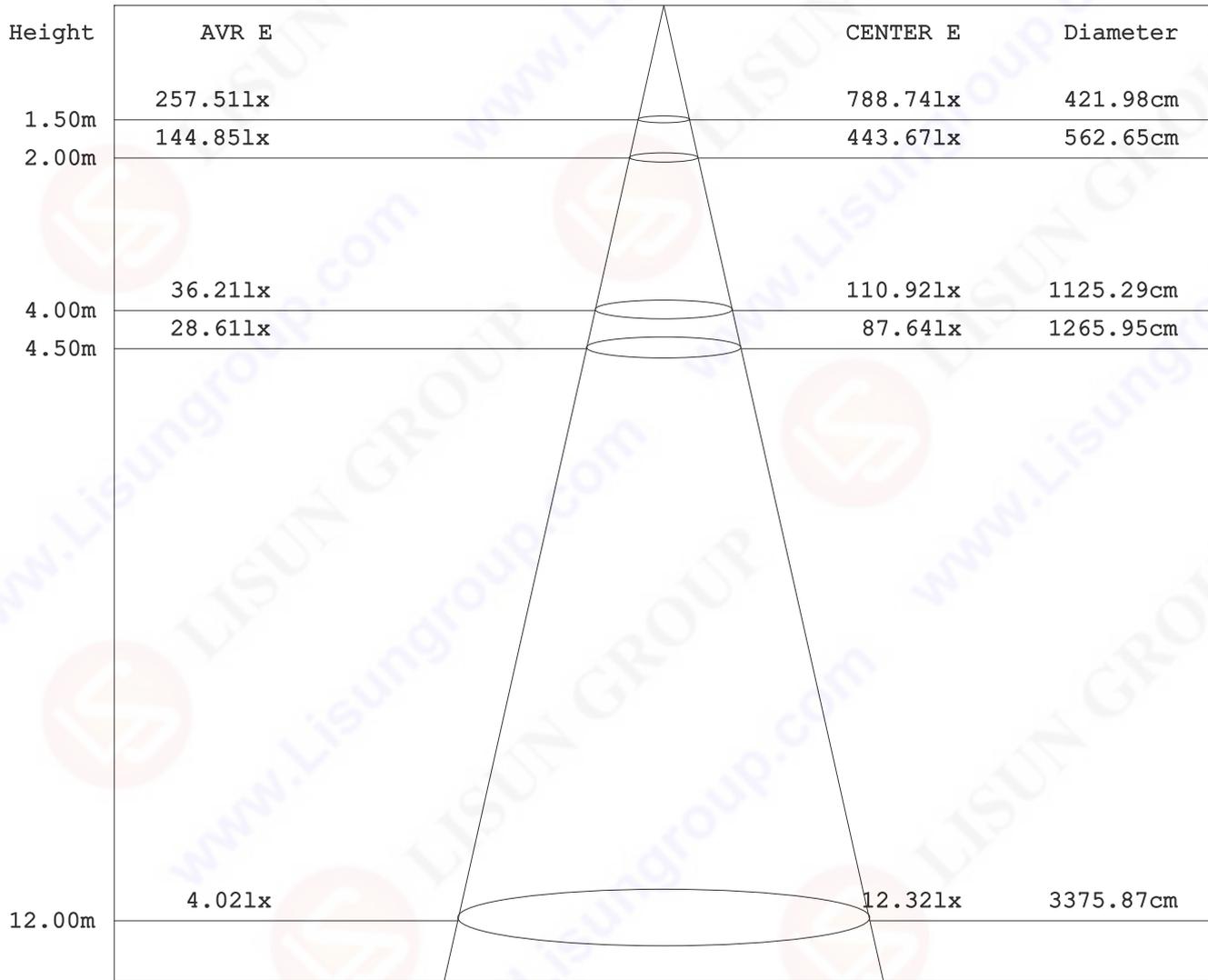
Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

**AVERAGE AND CENTER E Figure**

Report number:

<b>MANUFACTURER:</b>		<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>	
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>	



Angle:109.2deg

Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

ZONAL FLUX DIAGRAM

Report number:

<b>MANUFACTURER:</b>		<b>Address:</b>	
<b>NAME: LED Street Lamp</b>		<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>		<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	z <sub>one</sub>	t <sub>total</sub>
5.0	170.2	169.0	164.9	162.7	164.8	164.1	165.8	169.4	0- 5	3.975	3.975
10.0	166.3	166.4	162.0	163.0	165.6	164.9	163.8	167.3	5- 10	11.86	15.84
15.0	162.2	161.2	157.8	160.3	156.6	162.6	160.5	162.8	10- 15	19.32	35.16
20.0	161.9	155.5	152.4	150.2	156.4	153.6	155.8	158.1	15- 20	26.01	61.18
25.0	153.9	149.7	146.7	144.7	150.2	148.6	150.0	153.0	20- 25	31.90	93.08
30.0	145.2	144.3	137.9	138.5	138.2	143.3	144.0	148.7	25- 30	37.21	130.2
35.0	141.8	133.5	128.3	131.9	132.3	138.1	136.0	137.8	30- 35	40.70	171.0
40.0	126.4	121.6	120.4	116.3	122.8	121.2	123.5	128.5	35- 40	43.12	214.1
45.0	117.8	117.1	104.6	108.8	105.4	114.0	113.3	121.6	40- 45	43.50	257.6
50.0	108.6	98.18	92.57	95.63	93.57	105.3	99.53	106.2	45- 50	43.22	300.8
55.0	87.30	91.34	77.19	76.12	83.20	85.16	85.67	92.75	50- 55	40.11	340.9
60.0	81.51	73.14	62.49	64.45	72.22	70.57	70.19	84.11	55- 60	36.60	377.5
65.0	75.75	57.91	46.08	58.72	54.68	63.33	55.26	63.43	60- 65	31.82	409.3
70.0	55.48	52.44	32.80	39.18	47.64	46.02	40.30	53.62	65- 70	26.86	436.2
75.0	47.01	36.12	21.96	31.39	37.20	37.19	28.57	43.87	70- 75	21.58	457.8
80.0	39.07	27.56	12.41	22.09	26.86	27.48	16.10	32.48	75- 80	16.50	474.3
85.0	26.65	18.07	4.819	12.51	18.65	19.49	9.203	24.53	80- 85	11.65	485.9
90.0	17.44	9.972	2.008	8.549	0	10.76	2.490	15.14	85- 90	7.162	493.1
95.0									90- 95		
100.0									95-100		
105.0									100-105		
110.0									105-110		
115.0									110-115		
120.0									115-120		
125.0									120-125		
130.0									125-130		
135.0									130-135		
140.0									135-140		
145.0									140-145		
150.0									145-150		
155.0									150-155		
160.0									155-160		
165.0									160-165		
170.0									165-170		
175.0									170-175		
180.0									175-180		
DEG	LUMINOUS INTENSITY:cd/klm									UNIT:lm/klm	

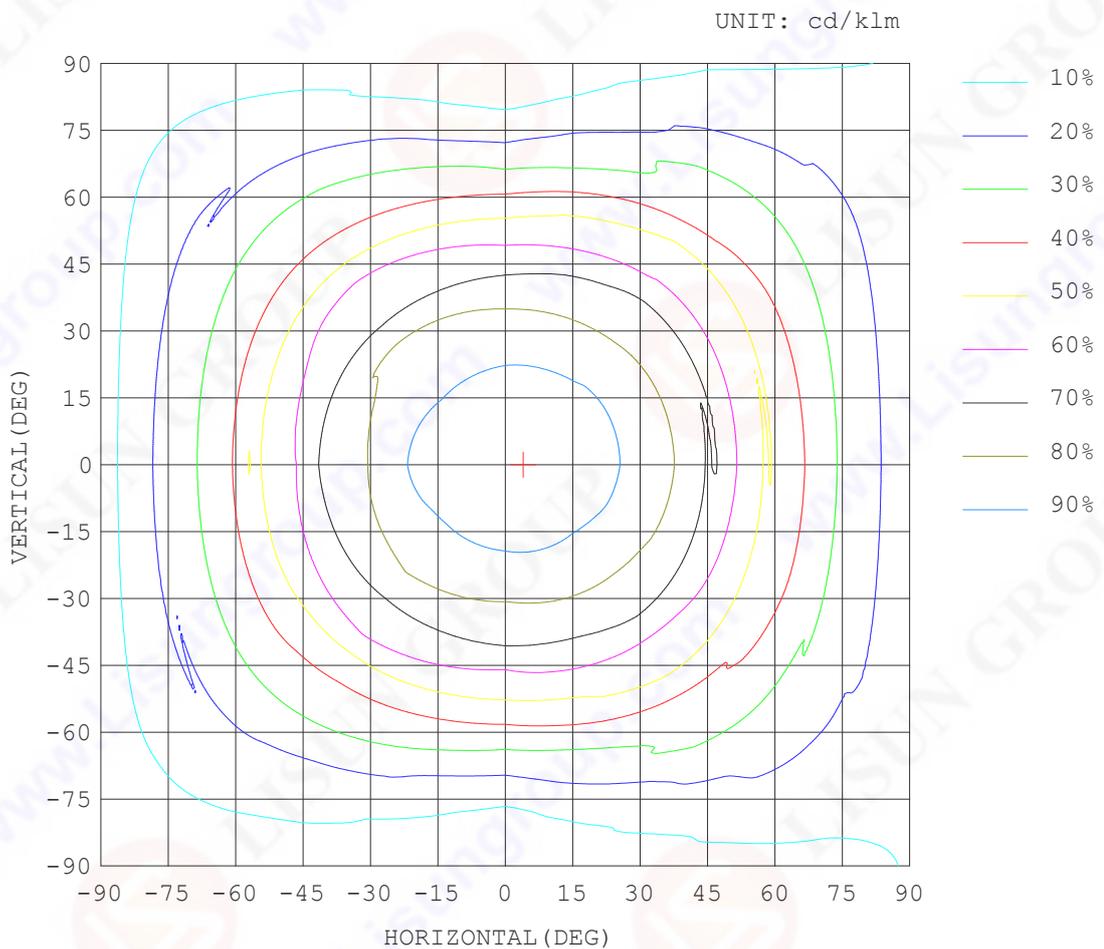
Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

### ISOCANDELA DIAGRAM

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>



Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

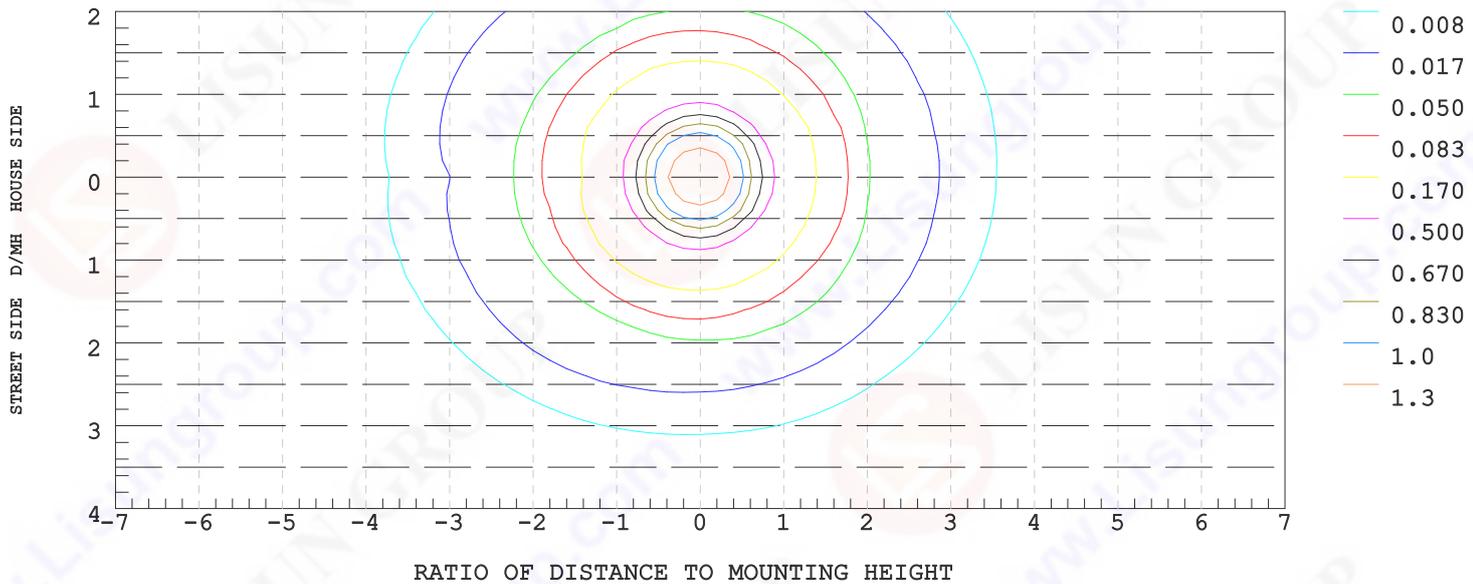
Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

### ISOLUX DIAGRAM

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>

ILLUMINANCE AT MH=10 m, Enadir = 1.66 lx/klm



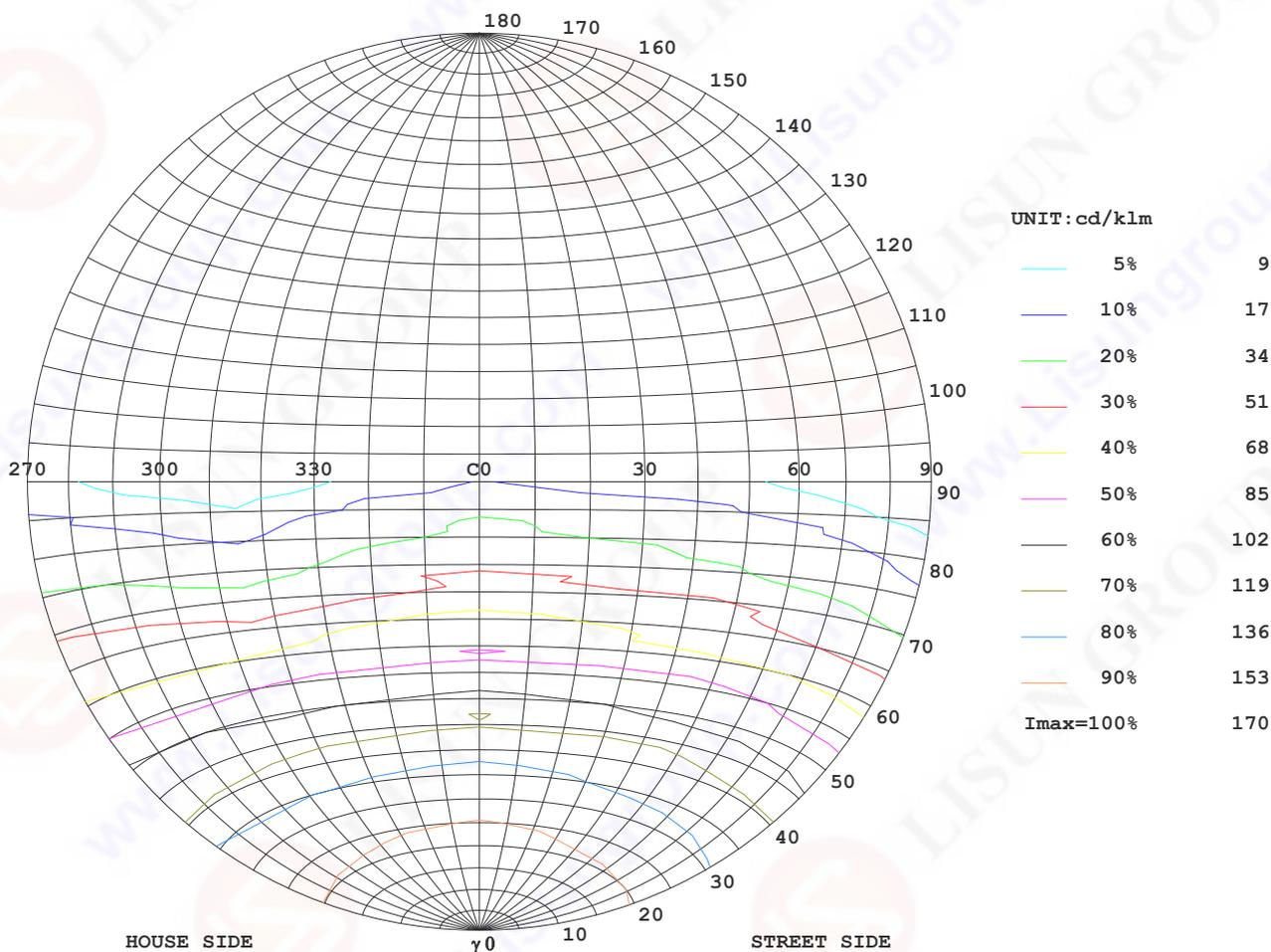
Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

### ISOCANDELA DIAGRAM

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>



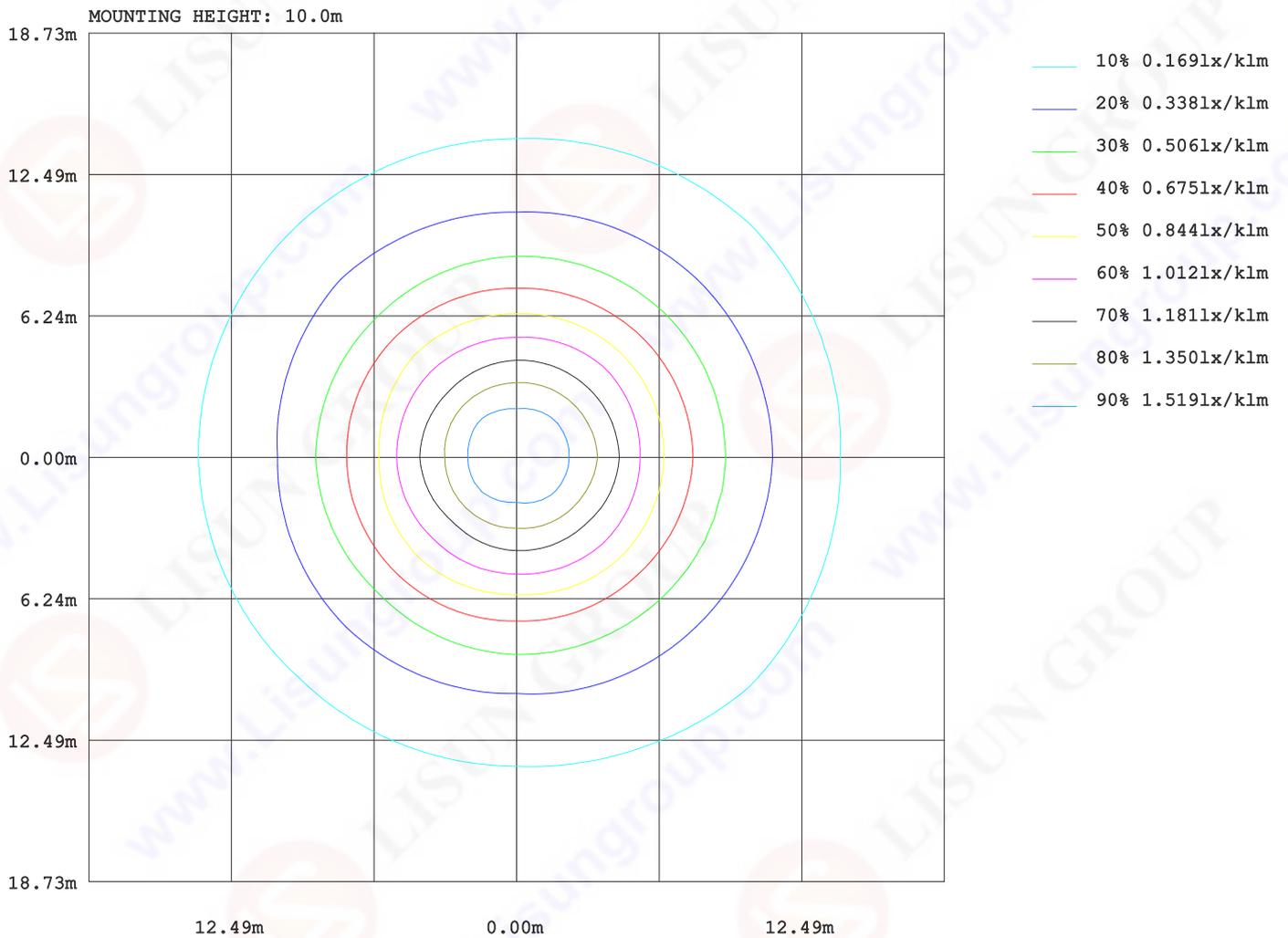
Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

### ISOLUX DIAGRAM

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>



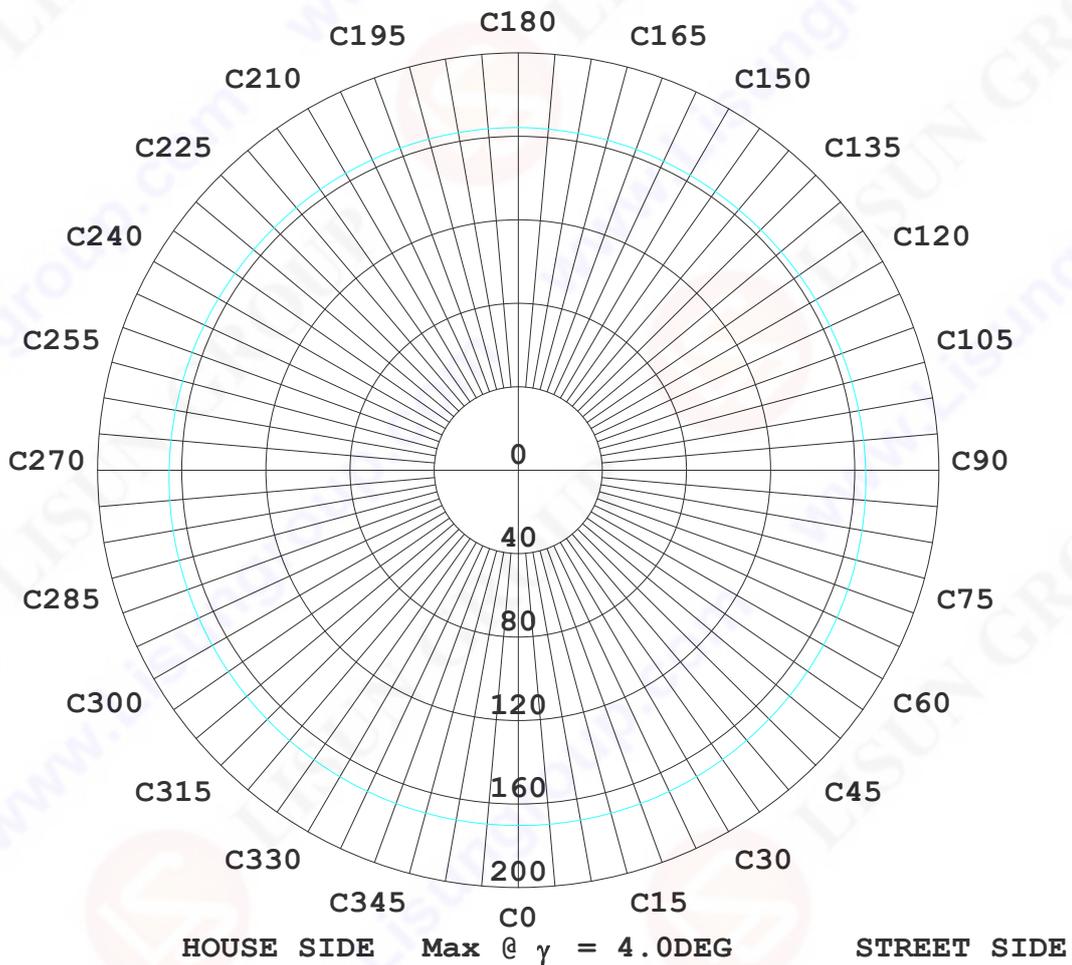
Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

**ISOCANDELA DIAGRAM**

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>



Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

**AREA LUMINOUS FLUX**

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>

		AREA FLUX DIAGRAM																	UNIT:lm/klm		Φ t	Φ a					
VERTICAL (DEG)	90	0.02	0.10	0.17	0.26	0.33	0.37	0.37	0.35	0.30	0.32	0.41	0.46	0.49	0.46	0.37	0.26	0.15	0.05	5.25	2.64						
	80	0.04	0.14	0.27	0.43	0.60	0.73	0.82	0.87	0.87	0.90	0.95	0.94	0.86	0.73	0.56	0.38	0.20	0.05	10.3	10.2						
	70	0.04	0.17	0.37	0.62	0.89	1.20	1.45	1.62	1.68	1.69	1.64	1.49	1.31	1.08	0.76	0.48	0.25	0.06	16.8	16.8						
	60	0.05	0.20	0.47	0.82	1.29	1.67	2.04	2.38	2.57	2.60	2.51	2.25	1.84	1.34	0.96	0.59	0.28	0.07	23.9	23.9						
	50	0.05	0.24	0.56	1.02	1.52	2.16	2.81	3.19	3.40	3.43	3.27	2.89	2.36	1.77	1.14	0.67	0.32	0.07	30.9	30.9						
	40	0.05	0.27	0.65	1.15	1.86	2.67	3.24	3.78	4.06	4.08	3.85	3.44	2.82	2.03	1.36	0.75	0.35	0.08	36.5	36.5						
	30	0.05	0.29	0.70	1.31	2.11	2.90	3.73	4.26	4.51	4.55	4.35	3.83	3.13	2.30	1.48	0.83	0.37	0.08	40.8	40.8						
		0.06	0.31	0.73	1.43	2.22	3.18	3.95	4.49	4.84	4.86	4.60	4.10	3.34	2.49	1.56	0.90	0.39	0.09	43.5	43.5						
		0.06	0.32	0.75	1.48	2.29	3.25	4.08	4.66	4.99	5.07	4.76	4.22	3.45	2.57	1.60	0.94	0.39	0.09	45.0	45.0						
		0.06	0.32	0.74	1.46	2.27	3.23	4.06	4.63	4.96	5.05	4.74	4.20	3.43	2.55	1.59	0.93	0.39	0.09	44.7	44.7						
		0.06	0.31	0.72	1.40	2.17	3.12	3.87	4.40	4.75	4.78	4.52	4.03	3.27	2.44	1.53	0.89	0.38	0.09	42.7	42.7						
	-30	0.05	0.29	0.67	1.27	2.01	2.82	3.60	4.11	4.39	4.44	4.22	3.70	3.03	2.21	1.43	0.82	0.36	0.08	39.5	39.5						
	-40	0.05	0.26	0.61	1.10	1.74	2.50	3.10	3.62	3.87	3.89	3.69	3.28	2.67	1.94	1.28	0.73	0.34	0.08	34.8	34.7						
	-50	0.05	0.23	0.53	0.95	1.42	1.96	2.57	2.97	3.18	3.22	3.06	2.69	2.21	1.61	1.09	0.64	0.31	0.07	28.7	28.7						
	-60	0.04	0.19	0.44	0.74	1.14	1.52	1.85	2.16	2.34	2.38	2.28	2.02	1.62	1.26	0.89	0.54	0.27	0.07	21.7	21.7						
	-70	0.04	0.15	0.34	0.55	0.77	1.01	1.24	1.39	1.44	1.46	1.44	1.34	1.18	0.95	0.67	0.44	0.23	0.06	14.7	14.7						
	-80	0.04	0.12	0.23	0.36	0.50	0.60	0.67	0.70	0.68	0.70	0.76	0.76	0.71	0.62	0.49	0.34	0.18	0.05	8.52	7.91						
-90	0.02	0.09	0.15	0.21	0.25	0.27	0.27	0.25	0.21	0.22	0.29	0.34	0.36	0.34	0.29	0.22	0.13	0.05	3.96	0.82							
		-90	-80	-70	-60	-50	-40	-30	-20	HORIZONTAL (DEG)										20	30	40	50	60	70	80	90
Φ t	0.83	3.98	9.09	16.6	25.4	35.2	43.7	49.8	53.1	53.7	51.4	46.0	38.1	28.7	19.1	11.3	5.30	1.26	493								
Φ a	0.50	3.60	8.70	16.1	25.0	34.7	43.2	49.2	52.4	53.0	50.8	45.6	37.8	28.5	18.9	11.2	5.21	1.25		487							

Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

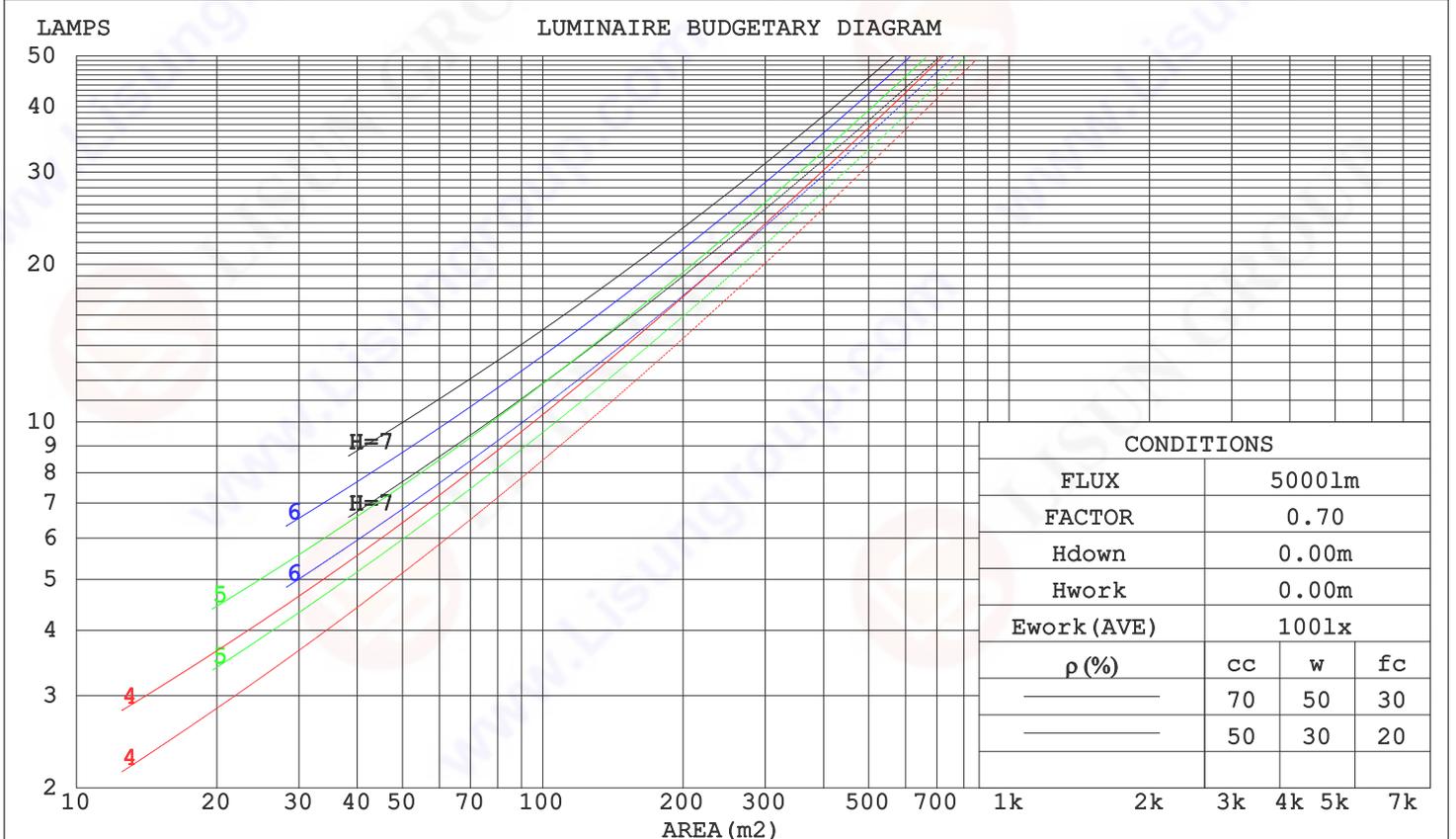
Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Report number:

MANUFACTURER:				Address:											
NAME: LED Street Lamp				TYPE:LED-L120W						WEIGHT:8kg					
SPECIFICATION:120W				DIMENSION: 750*350*85						SERIAL No.:LED-L120W-01					

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio															
	Coefficients of Utilization(CU)															
0.0	.59	.59	.59	.57	.57	.57	.55	.55	.55	.52	.52	.52	.50	.50	.50	.49
1.0	.51	.48	.46	.50	.47	.46	.47	.46	.44	.45	.44	.43	.44	.43	.41	.40
2.0	.44	.40	.37	.43	.40	.37	.41	.39	.36	.40	.37	.35	.38	.36	.35	.33
3.0	.39	.34	.31	.38	.34	.31	.36	.33	.30	.35	.32	.30	.34	.31	.29	.28
4.0	.34	.30	.26	.33	.29	.26	.32	.29	.26	.31	.28	.25	.30	.27	.25	.24
5.0	.30	.26	.23	.30	.26	.22	.29	.25	.22	.28	.25	.22	.27	.24	.22	.21
6.0	.27	.23	.20	.27	.23	.20	.26	.22	.19	.25	.22	.19	.24	.21	.19	.18
7.0	.25	.20	.17	.24	.20	.17	.24	.20	.17	.23	.20	.17	.22	.19	.17	.16
8.0	.23	.18	.15	.22	.18	.15	.22	.18	.15	.21	.18	.15	.20	.17	.15	.14
9.0	.21	.17	.14	.21	.17	.14	.20	.16	.14	.19	.16	.14	.19	.16	.14	.13
10.0	.19	.15	.13	.19	.15	.13	.18	.15	.13	.18	.15	.12	.18	.15	.12	.12



Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

**WEC AND CCEC**

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>					
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>			<b>WEIGHT:8kg</b>		
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>			<b>SERIAL No.:LED-L120W-01</b>		

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
<b>RCR</b>	<b>RCR:Room Cavity Ratio</b>						<b>Wall Exitance Coefficients(WEC)</b>									
0.0																
1.0	.164	.093	.030	.160	.091	.029	.154	.088	.028	.148	.085	.027	.142	.082	.027	
2.0	.150	.082	.025	.147	.081	.025	.141	.078	.024	.135	.076	.024	.131	.074	.023	
3.0	.137	.073	.022	.134	.072	.022	.129	.070	.021	.124	.068	.021	.120	.066	.021	
4.0	.125	.065	.019	.123	.064	.019	.118	.063	.019	.114	.061	.018	.110	.060	.018	
5.0	.115	.059	.017	.113	.058	.017	.109	.057	.017	.105	.056	.017	.102	.054	.016	
6.0	.107	.053	.015	.105	.053	.015	.101	.052	.015	.098	.051	.015	.095	.050	.015	
7.0	.099	.049	.014	.097	.049	.014	.094	.048	.014	.091	.047	.014	.088	.046	.013	
8.0	.092	.045	.013	.091	.045	.013	.088	.044	.013	.085	.043	.012	.083	.043	.012	
9.0	.087	.042	.012	.085	.042	.012	.083	.041	.012	.080	.040	.011	.078	.040	.011	
10.0	.081	.039	.011	.080	.039	.011	.078	.038	.011	.076	.038	.011	.073	.037	.011	

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
<b>RCR</b>	<b>RCR:Room Cavity Ratio</b>						<b>Ceiling Cavity Exitance Coefficients(CCEC)</b>									
0.0	.094	.094	.094	.080	.080	.080	.055	.055	.055	.031	.031	.031	.010	.010	.010	
1.0	.090	.077	.065	.077	.066	.056	.052	.045	.039	.030	.026	.023	.010	.008	.007	
2.0	.086	.065	.048	.073	.056	.041	.050	.039	.029	.029	.023	.017	.009	.007	.005	
3.0	.082	.056	.036	.070	.049	.031	.048	.034	.022	.028	.020	.013	.009	.006	.004	
4.0	.078	.050	.028	.067	.043	.025	.046	.030	.017	.027	.018	.010	.009	.006	.003	
5.0	.074	.045	.023	.064	.039	.020	.044	.027	.014	.025	.016	.008	.008	.005	.003	
6.0	.071	.041	.019	.061	.035	.017	.042	.025	.012	.024	.014	.007	.008	.005	.002	
7.0	.067	.037	.016	.058	.032	.014	.040	.023	.010	.023	.013	.006	.007	.004	.002	
8.0	.064	.034	.014	.055	.030	.012	.038	.021	.009	.022	.012	.005	.007	.004	.002	
9.0	.061	.032	.012	.052	.028	.011	.036	.019	.008	.021	.011	.005	.007	.004	.002	
10.0	.058	.030	.011	.050	.026	.010	.035	.018	.007	.020	.011	.004	.007	.004	.001	

Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

## Uncorrected UGR Table

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>			
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>		<b>WEIGHT:8kg</b>	
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>		<b>SERIAL No.:LED-L120W-01</b>	

ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	14.7	16.2	14.9	16.4	16.6	13.7	15.3	14.0	15.5	15.7
3H	16.5	17.9	16.8	18.2	18.4	14.9	16.3	15.2	16.6	16.8
4H	17.5	18.9	17.8	19.1	19.4	15.3	16.7	15.6	16.9	17.2
6H	18.5	19.8	18.9	20.1	20.4	15.6	16.9	15.9	17.2	17.4
8H	19.1	20.4	19.5	20.6	20.9	15.7	16.9	16.0	17.2	17.5
12H	19.6	20.8	20.0	21.1	21.5	15.7	16.9	16.1	17.2	17.5
4H 2H	15.2	16.5	15.5	16.8	17.1	14.5	15.8	14.8	16.1	16.3
3H	17.3	18.5	17.6	18.8	19.1	15.9	17.1	16.3	17.4	17.7
4H	18.4	19.5	18.8	19.8	20.1	16.5	17.6	16.9	17.9	18.2
6H	19.6	20.6	20.0	21.0	21.3	16.9	17.9	17.3	18.2	18.6
8H	20.3	21.2	20.7	21.6	22.0	17.1	18.0	17.5	18.4	18.8
12H	21.0	21.8	21.4	22.2	22.6	17.2	18.0	17.6	18.4	18.8
8H 4H	18.7	19.6	19.1	19.9	20.3	17.0	17.9	17.4	18.3	18.7
6H	20.1	20.9	20.5	21.3	21.7	17.7	18.5	18.1	18.9	19.3
8H	21.0	21.7	21.4	22.1	22.5	18.0	18.7	18.5	19.1	19.6
12H	21.8	22.4	22.3	22.8	23.3	18.2	18.8	18.7	19.3	19.8
12H 4H	18.7	19.5	19.1	19.9	20.3	17.1	18.0	17.6	18.4	18.8
6H	20.2	20.9	20.6	21.3	21.8	17.9	18.6	18.4	19.0	19.5
8H	21.1	21.7	21.6	22.2	22.7	18.4	19.0	18.8	19.4	19.9
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.2					+ 0.3 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.4				

CIE Pub.117 Corrected 1000 lm Total Lamp Luminous Flux. (8log(F/F0) = 0.0)

Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

**UTILIZATION FACTORS TABLE**

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>

REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
<b>ROOM INDEX</b>	<b>UTILIZATION FACTORS (PERCENT) <math>k(RI) \times RCR = 5</math></b>									
k = 0.60	28	22	19	28	22	19	27	22	19	15
0.80	33	27	23	32	27	23	32	27	23	20
1.00	37	31	28	36	31	28	35	32	27	24
1.25	40	35	32	40	35	31	38	34	31	27
1.50	43	38	34	42	37	34	41	37	34	30
2.00	46	42	39	45	41	38	44	40	37	34
2.50	48	44	41	47	44	41	45	42	40	36
3.00	50	46	43	49	46	43	47	44	42	38
4.00	52	49	46	51	48	46	49	46	44	40
5.00	53	51	48	52	50	48	50	48	46	42
<b>ROOM INDEX</b>	<b>UF(total)</b>									<b>Direct</b>
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks:

**LUMINOUS DISTRIBUTION INTENSITY DATA**

Report number:

<b>MANUFACTURER:</b>	<b>Address:</b>	
<b>NAME: LED Street Lamp</b>	<b>TYPE:LED-L120W</b>	<b>WEIGHT:8kg</b>
<b>SPECIFICATION:120W</b>	<b>DIMENSION: 750*350*85</b>	<b>SERIAL No.:LED-L120W-01</b>

UNIT: cd/klm

γ (DEG)	C (DEG)							
	0	45	90	135	180	225	270	315
0.0	166	166	166	166	166	166	166	166
5.0	170	169	165	163	165	164	166	169
10.0	166	166	162	163	166	165	164	167
15.0	162	161	158	160	157	163	161	163
20.0	162	156	152	150	156	154	156	158
25.0	154	150	147	145	150	149	150	153
30.0	145	144	138	139	138	143	144	149
35.0	142	134	128	132	132	138	136	138
40.0	126	122	120	116	123	121	124	129
45.0	118	117	105	109	105	114	113	122
50.0	109	98.1	92.5	95.6	93.5	105	99.5	106
55.0	87.3	91.3	77.1	76.1	83.2	85.1	85.6	92.7
60.0	81.5	73.1	62.4	64.4	72.2	70.5	70.1	84.1
65.0	75.7	57.9	46.0	58.7	54.6	63.3	55.2	63.4
70.0	55.4	52.4	32.8	39.1	47.6	46.0	40.3	53.6
75.0	47.0	36.1	21.9	31.3	37.2	37.1	28.5	43.8
80.0	39.0	27.5	12.4	22.0	26.8	27.4	16.1	32.4
85.0	26.6	18.0	4.81	12.5	18.6	19.4	9.20	24.5
90.0	17.4	9.97	2.00	8.54	0.00	10.7	2.49	15.1

Test System:LSG-1700  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2014-05-02

Test Set: 5.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.060 m  
 Remarks: