LISUN GROUP

Rotation Luminaire Goniophotometer (LSG-1800/LSG-1700)

Brochure

Global Office of Lisun Electronics Inc.

http://www.Lisungroup.com

Lisun Group (Hong Kong) Limited
Add: Room 803, Chevalier House, 45-51 Chatham Road South, Tsim Sha Tsui, KL, HK
Tel: 00852-68852050 Fax: 00852-30785638
Email: SalesHK@Lisungroup.com

Lisun Electronics (Shanghai) Co., Ltd
Add: 113-114, No. 1 Building, Nanxiang Zhidi Industry Park, No. 1101, Huyi Road, Jiading District, Shanghai, 201802, China
Tel: +86(21)5108 3341 Fax: +86(21)5108 3342
Email: SalesSH@Lisungroup.com

Lisun Electronics Inc. (USA)
Add: 445 S. Figueroa Street, Los Angeless, CA 90071, U.S.A.
Email: Sales@Lisungroup.com

Lisun China Factory
Add: NO. 37, Xiangyuan Road, Hangzhou City, Zhejiang Province, China
Tel: +86-189-1799-6096
Email: Engineering@Lisungroup.com

Leader in Lighting & Electrical Test Instruments

Rev. 10/18/2019

Rotation Luminaire Goniophotometer

1. System Configuration

The quotation includes all the following items:

A. Goniophotometric System:

- Goniometric Rotating Console
- Goniometric Rotating Control Instrument in 19inch cabinet: It connects to the PC and was controlled by the software. (Only LSG-1800 function)
- High Precision Photometer (Only LSG-1800 function)
- Class A Photo Detector
- Line Laser System for Calibrating
- English Measuring Software

B. SLS-200W AC Standard Light Source

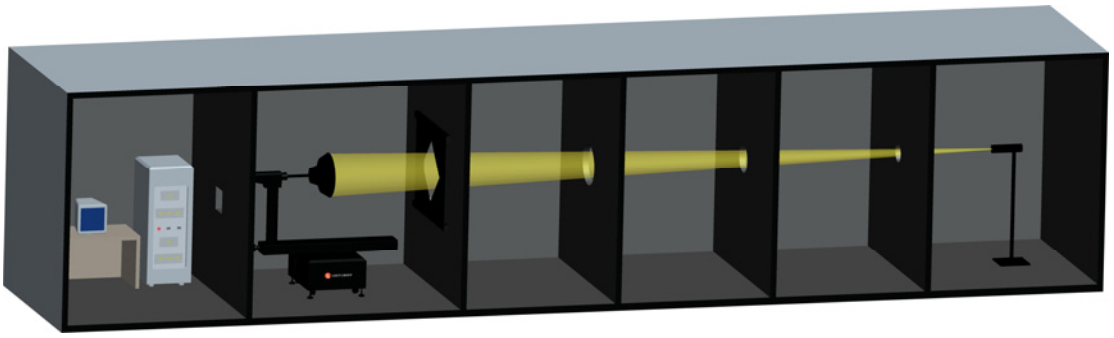
C. LS2012 Digital Power Meter: High Accuracy to measure AC and DC voltage, current, power and PF

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

E. CASE-19IN 19inch Standard Instruments Cabinet (Only LSG-1800 function)

F. Two sets of luminaries Clamps: two sets of multi-function luminaries clamps

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



Full View for Rotation Luminaire Goniophotometer

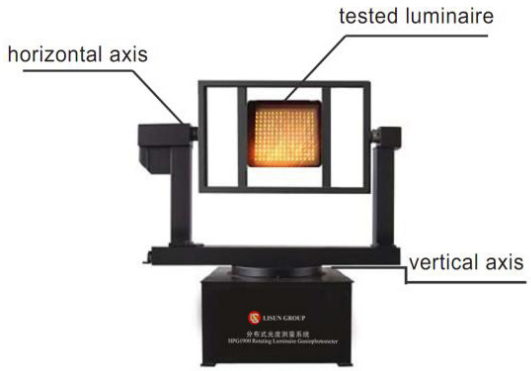
Note: PC and Printer prepared by the customer (request at least two USB ports)

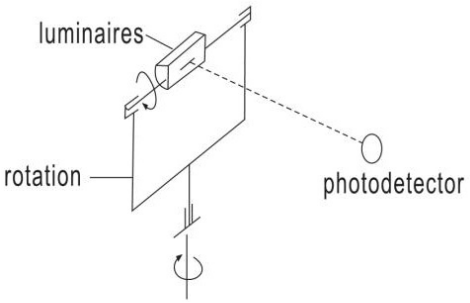
2. Working Principle

LSG-1800/LSG-1700 Goniophotometric System carries out measuring methods of fixed location and rotating luminaires. The measured luminaire is installed on the rotating supporte, 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° ～ +180° . According to the measurement requirements, the system can be operated in B-β or C-γ coordinates. When getting intensity distribution data, PC will calculate photometric parameters automatically.

LSG-1800 Double pillars structure (B-Beta and A-Alpha Test)

This type is applied to fixed grille lamp. The symmetry axis of lamp and the horizontal of rotating supporter is coaxial, in the B-β coordinate system, and the two is vertical Cross, in the A-α coordinate system.

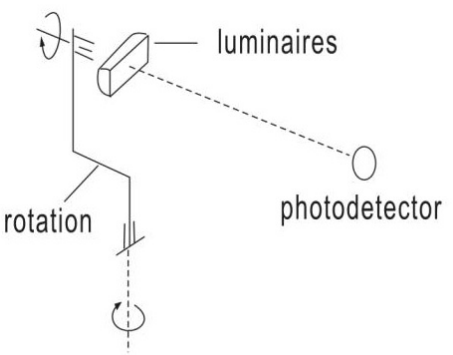




Double pillars structure

LSG-1800/LSG-1700 Single pillar structure (C-Gamma Test)

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-1800/LSG-1700 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-1800/LSG-1700 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 work.

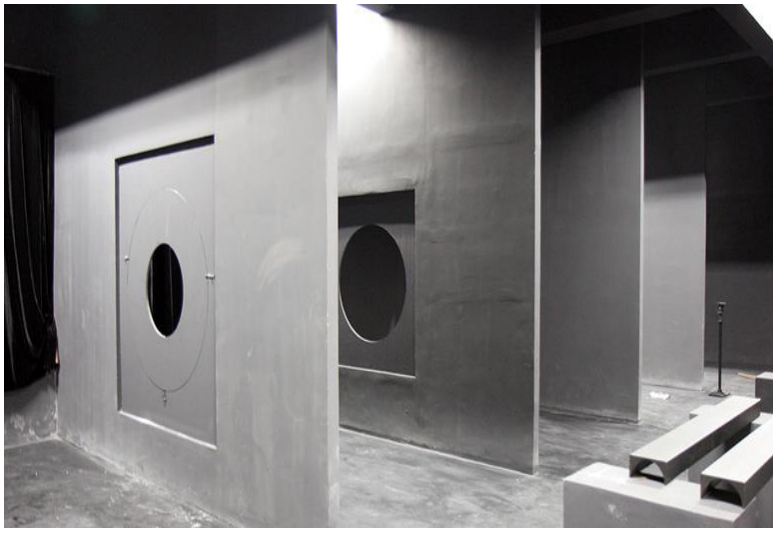
4. Specifications

- Meets the requirements of CIE, IEC, IES LM-79 & GB standards
- Reaching many measurement ways such as B-Beta & C-Gamma (LSG-1800) and C-Gamma (LSG-1700)
- 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～10^7cd(detector)
- The accuracy of angle: 0.2°
- Photometry Accuracy: CIE Class A
- Testing Accuracy: 3%(Under Standard lamp); Stray Light: less than 0.2%
- English version software can run in Win7, Win8 or Win10

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	
LSG-1800	1600*550	700*600	50kg
LSG-1700	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 oversea market customers:

There are many world famous company and lab institute choose Lisun Goniophtometer, 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-1800/LSG-1700 goniophotometer 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"

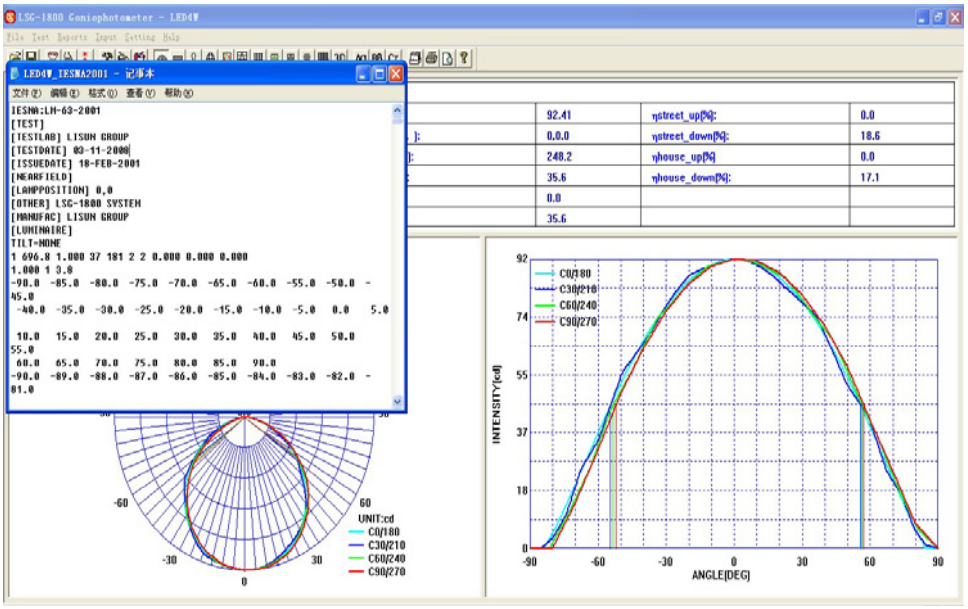
3.8 IES 61341 "Method of Measurement of Center Beam Intensity Angle of Lamp"

3.9 CIE Pub.NO.76, "Photometry-the CIE System of Physical Photometry"

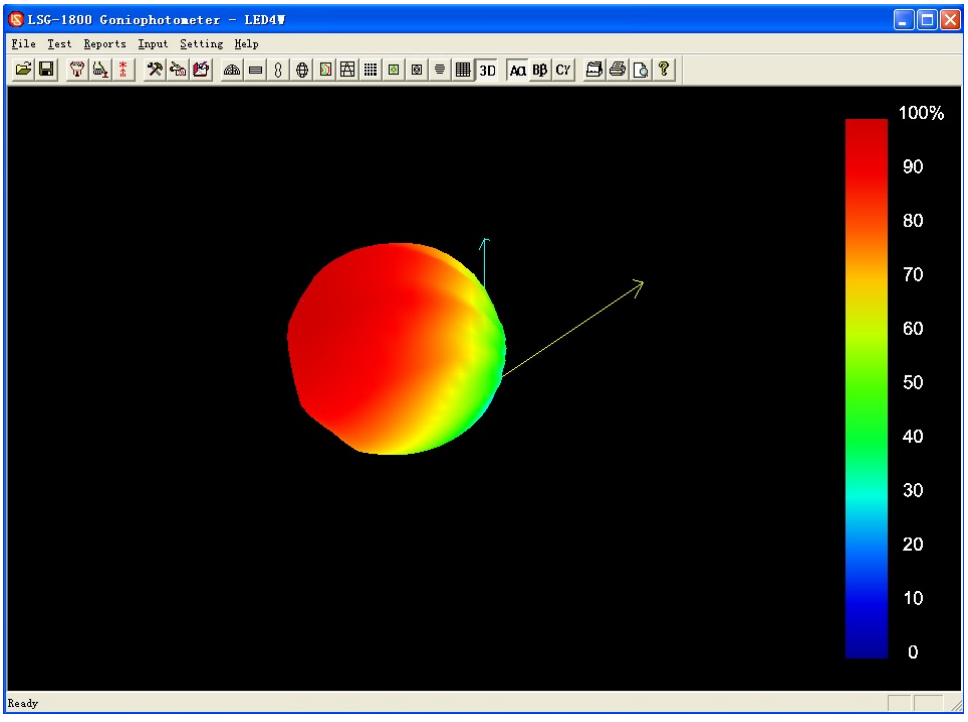
8. Application Software

All control of the LSG-1800/LSG-1700 goniophotometer 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



The Next Page is the Test Report by the software

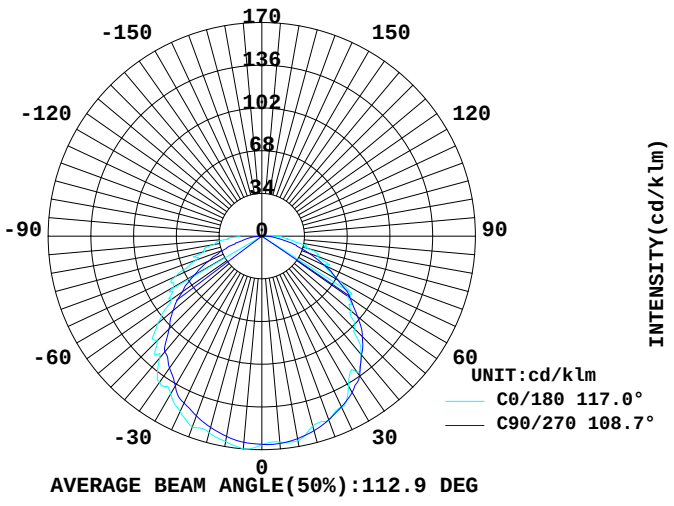
STREETLIGHT PHOTOMETRIC TEST REPORT

Report number: RT20223055

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

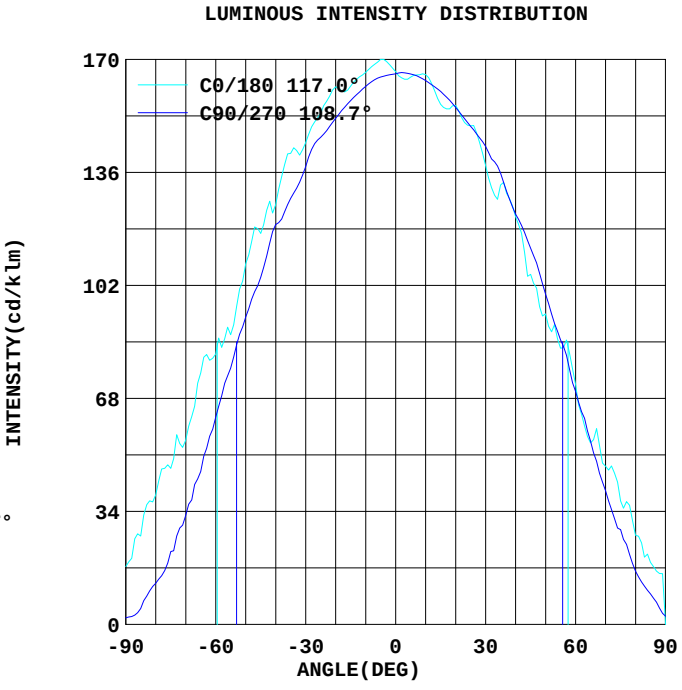
MODEL:	OSRAM	Imax(cd/klm):	170.2	Effictive Flux(lm):	487.0
NOMINAL POWER(W):	56	MAXIMUM(C, γ):	0, 4.0	EEI	1.298
RATED VOLTAGE(V):	220	EFFICIENCY(%):	49.3	Voltage(V)	220.0
NOMINAL FLUX(lm):	10659.4	η street_up(%):	0.0	Current(A)	0.264
TEST FLUX(lm):	10659	η street_down(%):	24.4	Power(W)	56.16
LAMPS QUANTITY: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

INTENSITY DISTRIBUTION DIAGRAM
IN C PLANS



AVERAGE BEAM ANGLE(50%):112.9 DEG

INTENSITY DISTRIBUTION DIAGRAM
IN C PLANS



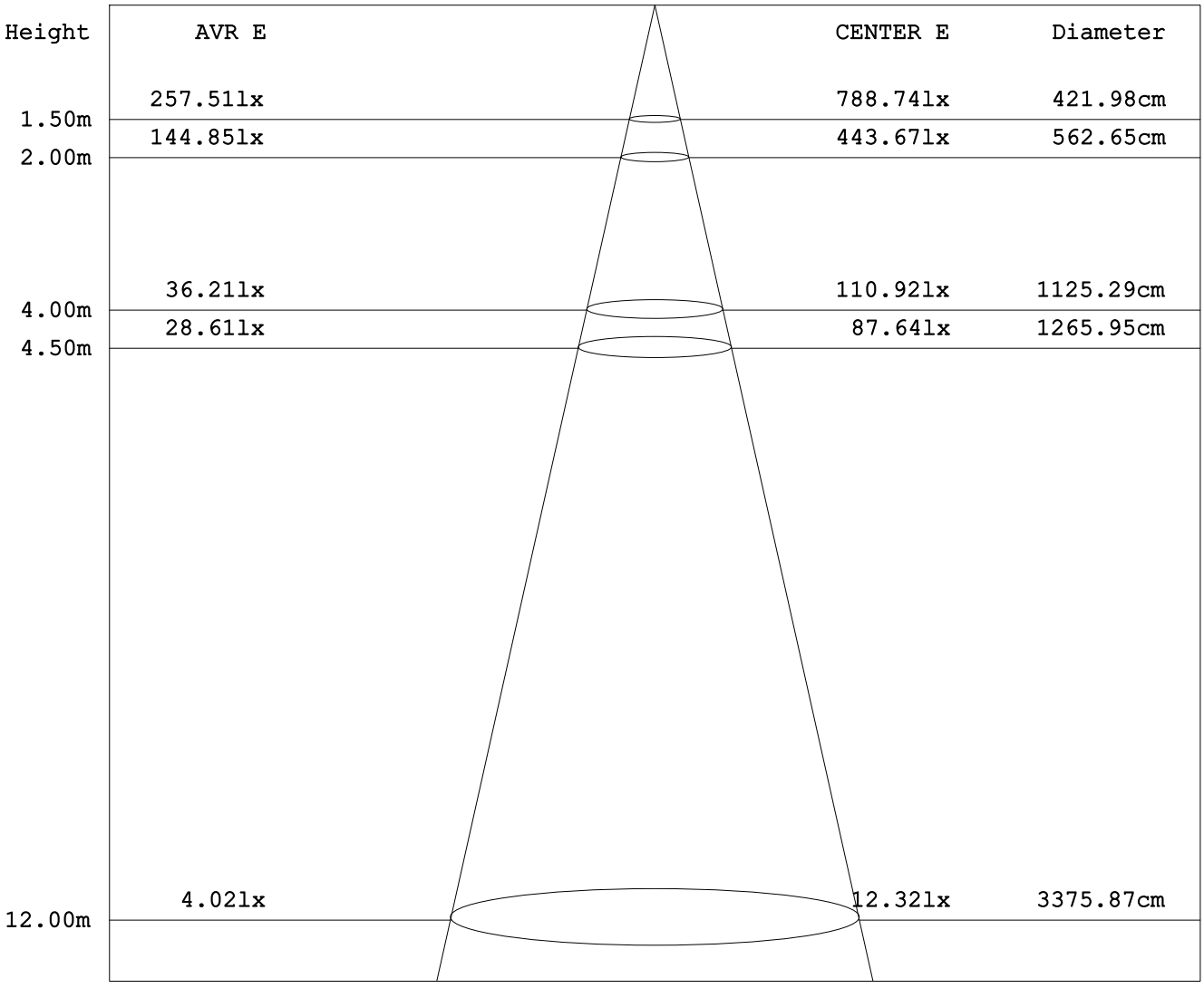
Test System:LSG-1800
Temperature:25.3DEG
Operators:DAVID
Test Date:2012-12-5

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: RT20223055

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



Angle:109.2deg

Test System:LSG-1800
Test Set: 5.0deg/s C-Gamma (TYPE C)
Temperature:25.3DEG
Humidity:65.0%
Operators:DAVID
Test Distance:11.060 m
Test Date:2012-12-5
Remarks:

ZONAL FLUX DIAGRAM

Report number: RT20223055

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

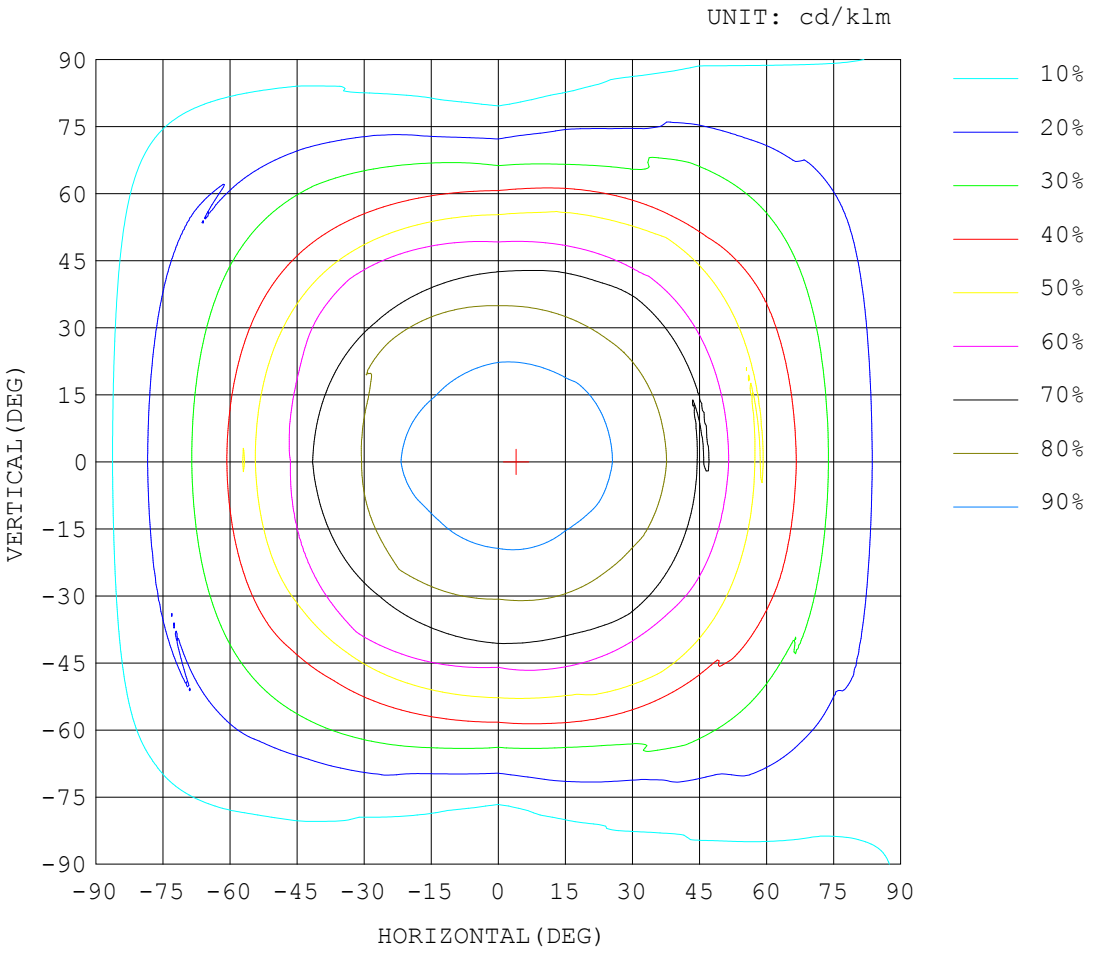
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total
5.0	170.2	169.0	164.9	162.7	164.8	164.1	165.8	169.4	0- 5	3.975	3.975
10.0	166.3	166.4	162.0	163.0	165.6	164.9	163.8	167.3	5- 10	11.86	15.84
15.0	162.2	161.2	157.8	160.3	156.6	162.6	160.5	162.8	10- 15	19.32	35.16
20.0	161.9	155.5	152.4	150.2	156.4	153.6	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-1800 Test Set: 5.0deg/s C-Gamma (TYPE C)
Temperature:25.3DEG Humidity:65.0%
Operators:DAVID Test Distance:11.060 m
Test Date:2012-12-5 Remarks:

ISOCANDELA DIAGRAM

Report number: RT20223055

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



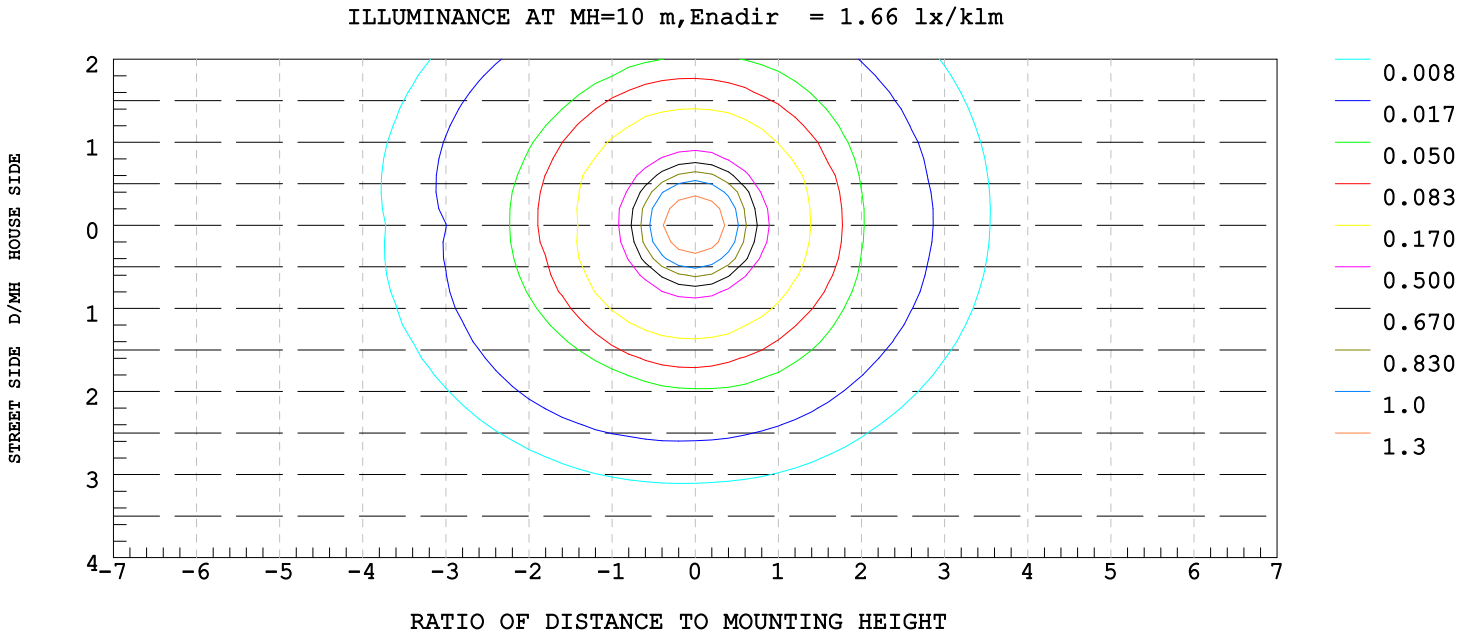
Test System:LSG-1800
Temperature:25.3DEG
Operators:DAVID
Test Date:2012-12-5

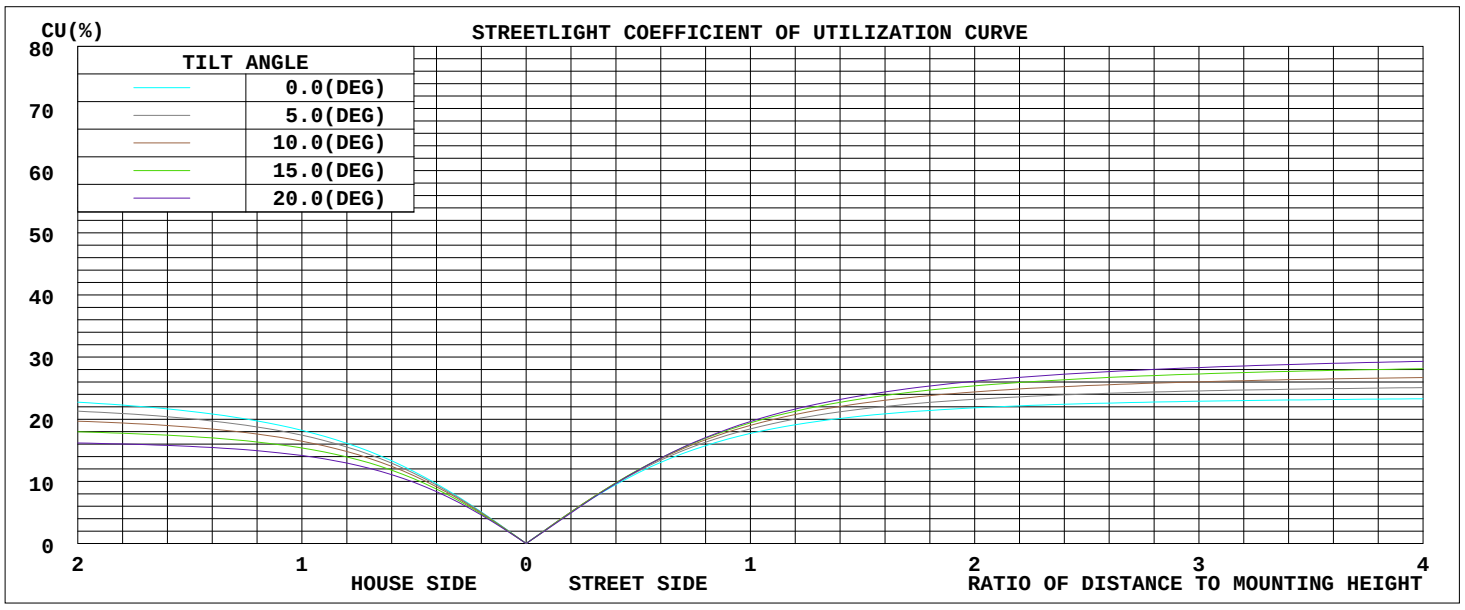
Test Set: 5.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:11.060 m
Remarks:

ISOLUX DIAGRAM

Report number: RT20223055

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





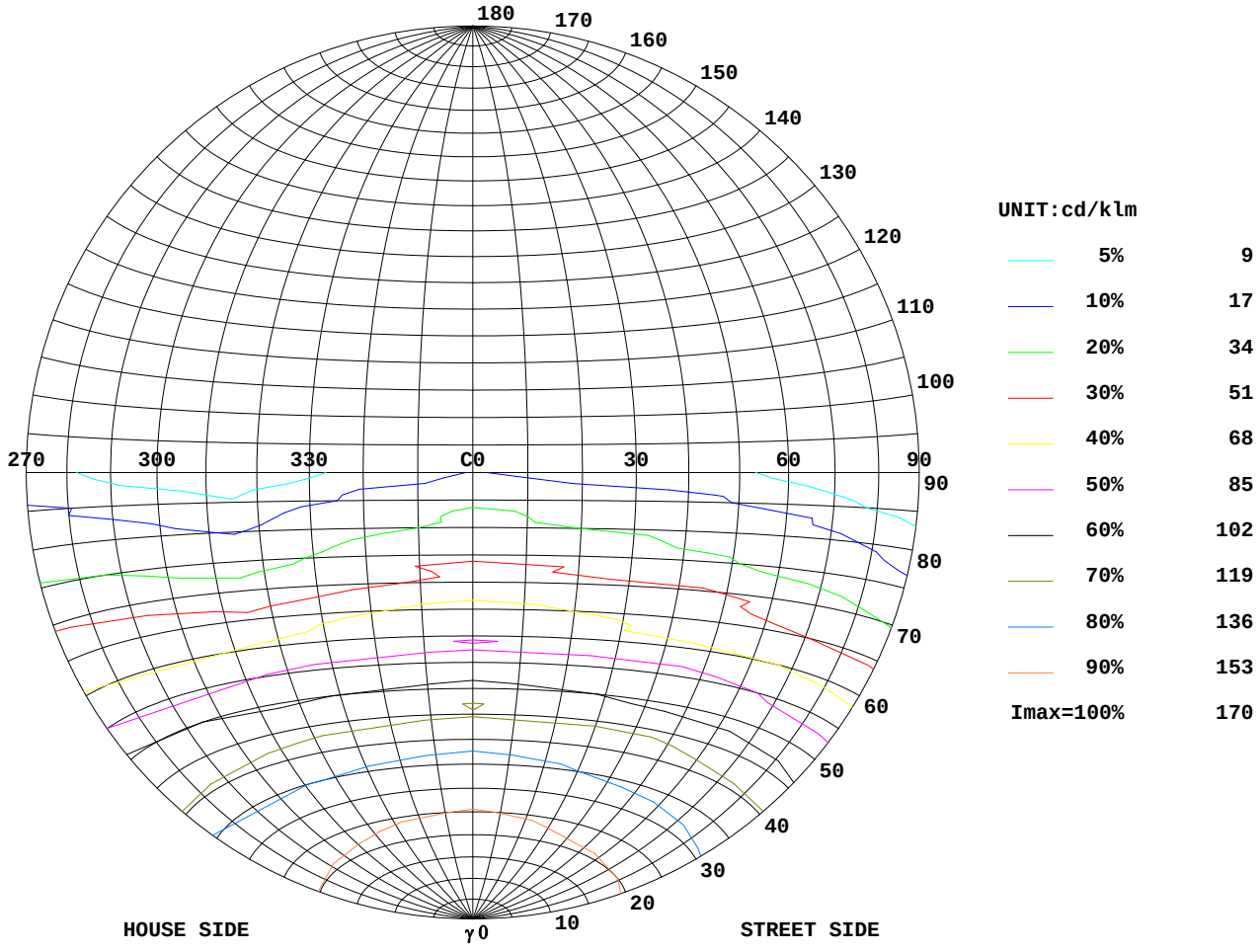
Test System:LSG-1800
Temperature:25.3DEG
Operators:DAVID
Test Date:2012-12-5

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

ISOCANDELA DIAGRAM

Report number: RT20223055

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



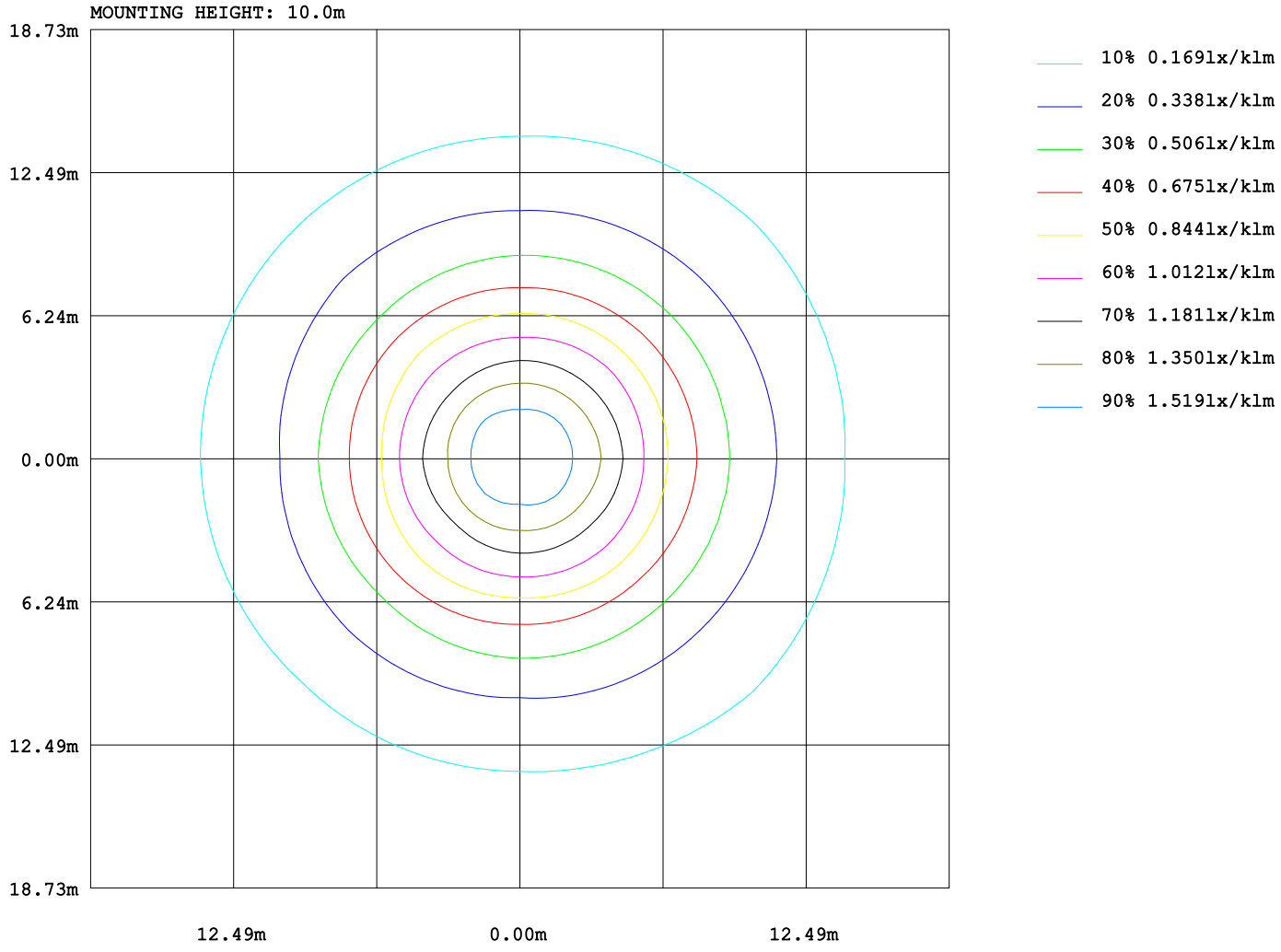
Test System:LSG-1800
Temperature:25.3DEG
Operators:DAVID
Test Date:2012-12-5

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

ISOLUX DIAGRAM

Report number: RT20223055

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

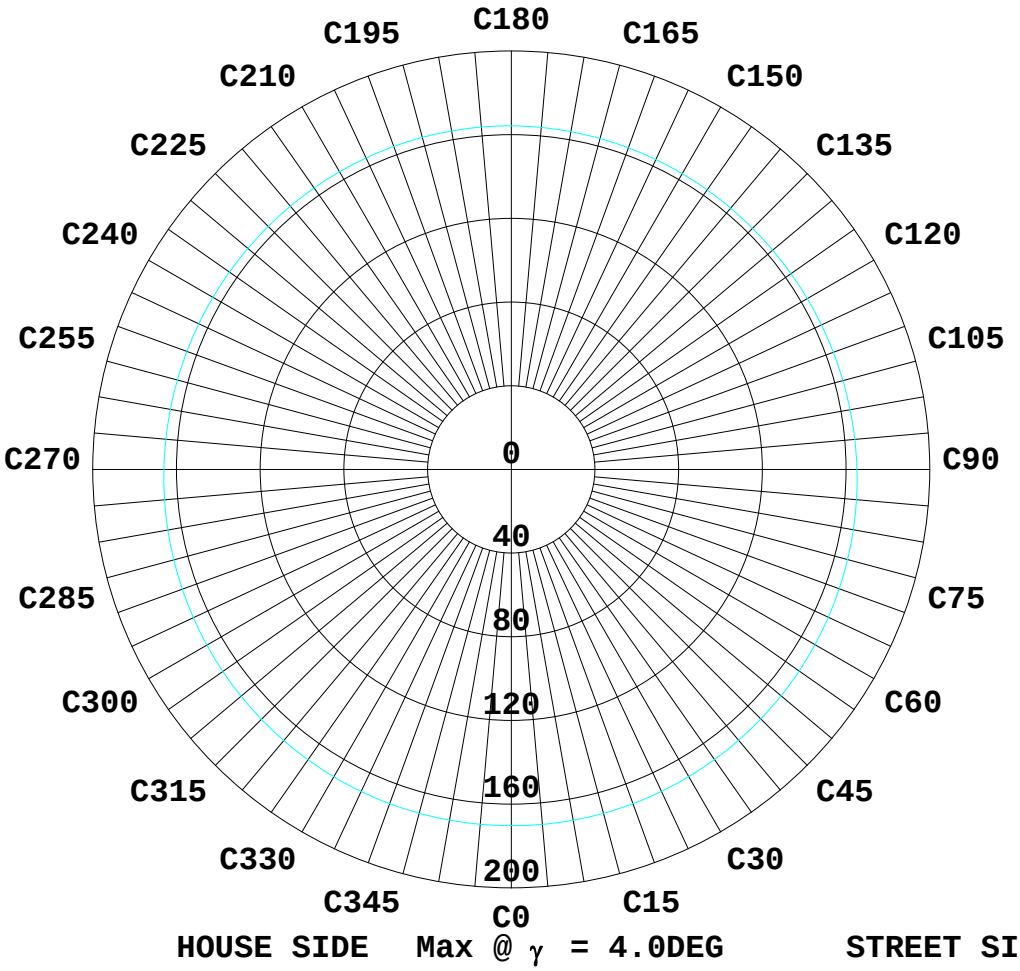


Test System:LSG-1800 Test Set: 5.0deg/s C-Gamma (TYPE C)
Temperature:25.3DEG Humidity:65.0%
Operators:DAVID Test Distance:11.060 m
Test Date:2012-12-5 Remarks:

ISOCANDELA DIAGRAM

Report number: RT20223055

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



Test System:LSG-1800 Test Set: 5.0deg/s C-Gamma (TYPE C)
Temperature:25.3DEG Humidity:65.0%
Operators:DAVID Test Distance:11.060 m
Test Date:2012-12-5 Remarks:

AREA LUMINOUS FLUX

Report number: RT20223055

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

AREA FLUX DIAGRAM — UNIT:lm/klm

VERTICAL(DEG)	-90	-80	-70	-60	-50	-40	-30	-20	HORIZONTAL(DEG) 20	30	40	50	60	70	80	90	Φ t	Φ a
90																		
80	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
70	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
60	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
50	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
40	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
30	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
	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
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-1800
Temperature:25.3DEG
Operators:DAVID
Test Date:2012-12-5

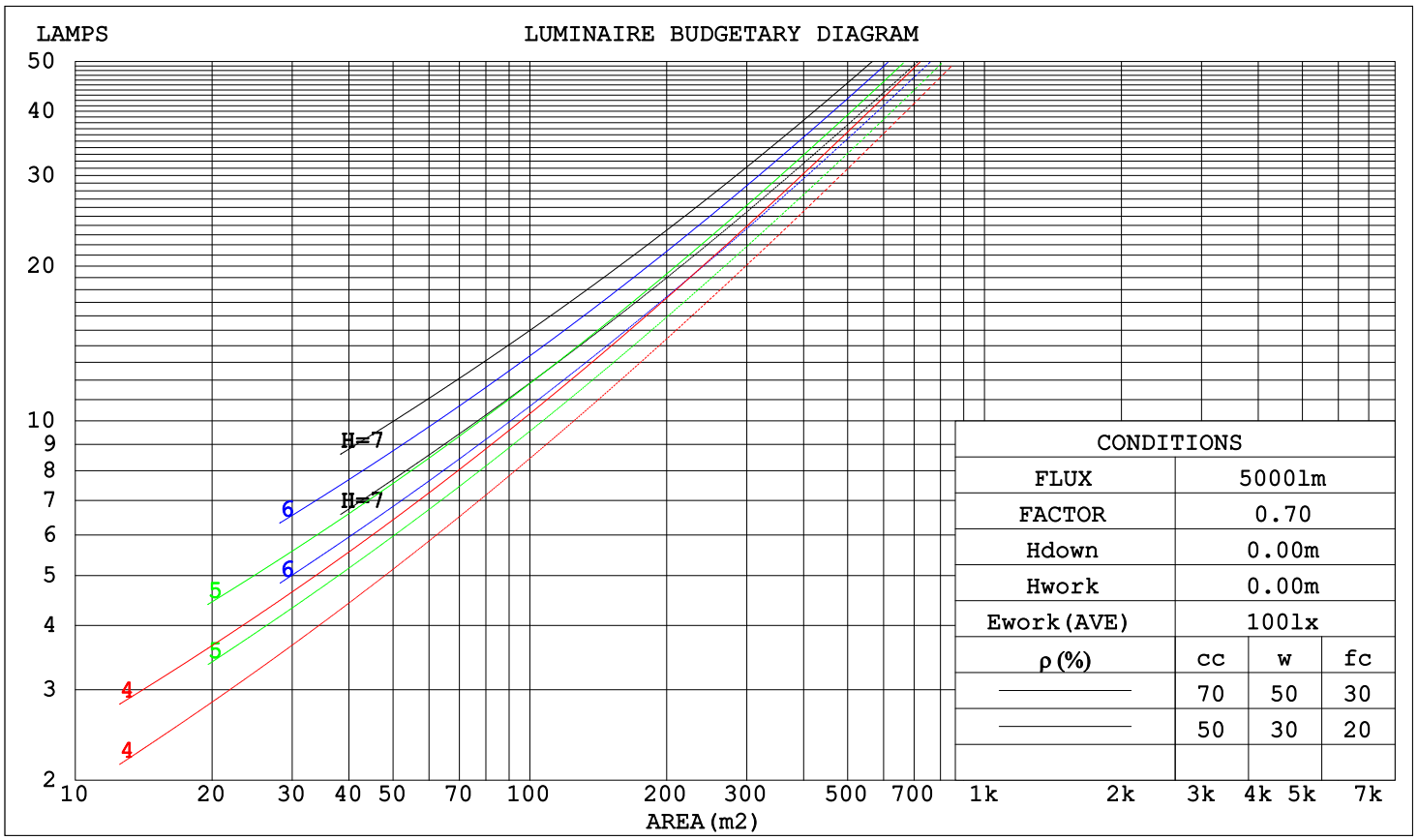
Test Set: 5.0deg/s C-Gamma (TYPE C)
Humidity:65.0%
Test Distance:11.060 m
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Report number: RT20223055

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

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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-1800
Temperature:25.3DEG
Operators:DAVID
Test Date:2012-12-5

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

WEC AND CCEC

Report number: RT20223055

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

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coeffcients(WEC)									
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	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
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-1800
Temperature:25.3DEG
Operators:DAVID
Test Date:2012-12-5

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

Uncorrected UGR Table

Report number: RT20223055

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

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-1800 Test Set: 5.0deg/s C-Gamma (TYPE C)
Temperature:25.3DEG Humidity:65.0%
Operators:DAVID Test Distance:11.060 m
Test Date:2012-12-5 Remarks:

UTILIZATION FACTORS TABLE

Report number: RT20223055

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

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
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
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
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

Test System:LSG-1800
Temperature:25.3DEG
Operators:DAVID
Test Date:2012-12-5

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

LUMINOUS DISTRIBUTION INTENSITY DATA

Report number: RT20223055

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

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-1800 Test Set: 5.0deg/s C-Gamma (TYPE C)
Temperature:25.3DEG Humidity:65.0%
Operators:DAVID Test Distance:11.060 m
Test Date:2012-12-5 Remarks: