中国认可
国际互认
检测
TESTING
CNAS L6478

TEST REPORT

Reference No.....	:	WTS18F05113595N
Applicant.....	:	Interlight Enjoy Innovation B.V.
Address.	:	Molenvliet 2, 3961 MV Wijk bij Duurstede The Netherlands
Manufacturer.....	:	Interlight Enjoy Innovation B.V.
Address.	:	Molenvliet 2, 3961 MV Wijk bij Duurstede The Netherlands
Product Name.....	:	LED Module
Model No.....	:	4pcs IL-MO1385K3 with IL-D595O-1-10
Ratings.....	:	200-240VAC, 50Hz, 30W
Standards.....	:	IES LM-79-08 Electrical and Photometric Measurements of Solid-State Lighting Products
Date of Receipt sample.....	:	2018-05-31
Date of Test.....	:	2018-05-31 to 2018-06-06
Date of Issue.....	:	2018-06-07
Test Report Form No.....	:	WPL-LM7908A-01A
Test Result.....	:	See the attached sheets

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Finn Yu / Project Engineer

Approved by:

WALTEK SERVICES CO., LTD. WALTEK TEST REPORT

Alan Xu / Manager

Trade Mark:
CAMETA

Measurement Point:
N

Characteristic data
(not shown on the marking plate)
N

Purpose of the product
(Description of intended use)
LED Module for generally lighting purpose.
Other information refers to photos in end page.

Possible test case verdicts:

- test case does not apply to the test object: ……: N(.A.) / not included in the order
- test object does meet the requirement……: P(ass)
- test object does not meet the requirement: ……: F(ail)

Possible suffixes to the verdicts:

- suffix for detailed information for the client……: - C(omment)
- suffix for important information for factory inspection....: - M(anufacturing)

General remarks:

"(See Attachment #)" refers to additional information appended to the report.
“(See remark #)” refers to a remark appended to the report.
"(See appended table)" refers to a table appended to the report.
Throughout this report a comma (point) is used as the decimal separator.

Remark:
1. Measurement was conducted at voltage 240VAC 50Hz and at a stable ambient temperature 25°C±1°C.
2. Detail information for models covered in this report as below:

Item	Model	Ratings	CCT	Driver
1	4pcs IL-MO1385K3 with IL-D595O-1-10	200-240VAC, 50Hz, 30W	3000K	30W DRIVER DIMMABLE

Test summary:

Testing is performed in accordance with the procedures outlined in IES LM-79-08. The sample is evaluated for photometric and electrical characteristics using an integrating sphere and a goniophotometer, located in an accredited, temperature and humidity-controlled, draft free photometric laboratory.

☒ Test No. 1 : Integrating Sphere Test

The sample was tested according to the IES LM-79-08.

Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.

The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load. The AC power supply, while operating the product, shall have a sinusoidal voltage waveshape at the prescribed frequency 50Hz or 60Hz such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item. It was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

☒ Test No. 2: Goniophotometer Test

The sample was tested according to the IES LM-79-08.

Photometric paramters were measured using a type C goniophotometer and software.

The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.

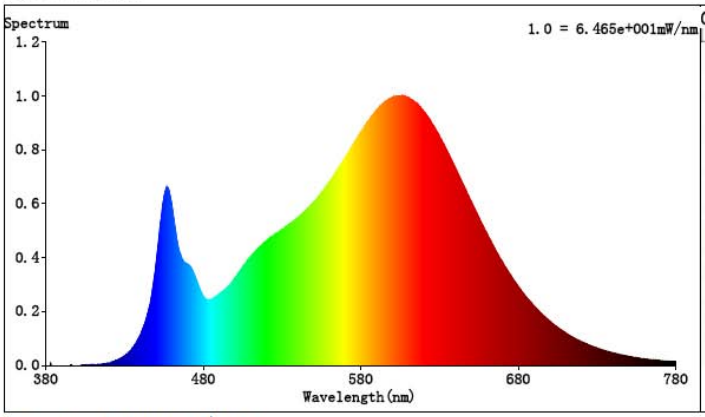
The sample was operated at Rated Volts(see Table 1). It was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 22.5° horizontal intervals.

IES LM-79-08			
Clause	Requirement – Test	Measuring result – Remark	Verdict
2.0	Ambient Conditions		P
2.1	Genaral		P
2.2	Air Temperature		P
2.3	Thermal Condition for Mounting SSL Products		P
2.4	Air Movement		P
3.0	Power Supply Characteristics		P
3.1	Waveshape of AC power supply		P
3.2	Voltage regulation		P
4.0	Seasoning of SSL Product		N
	No seasoning of SSL product		N
5.0	Stabilisation of SSL Product		P
	SSL product has sufficiently stabilized before measurement	Stabilized 30 minute	P
6.0	Operation Orientation		P
	SSL product shall be stabilized and measured in intended operating orientation	As normal working	P
7.0	Electrical Settings		P
	SSL product shall be operated at rated voltage		P
	SSL product with dimming capability are tested at maximum input power condition		N
	SSL product with different modes are measured in all relvant modes		N
8.0	Electrical Instrumentations		P
8.1	Circuits		P
8.2	Uncertainties		P
9.0	Test Methodes for Luminous Flux measurement		P
9.1	Integrating sphere with a spectroradiometer (Sphere-spectroradiometer system)		P
9.2	Integrating sphere with a photometer head (Sphere-photometer system)		N
9.3	Goniophotometer		P
10.0	Luminous Intensity Distribution		P
	Reporting acc. to IES LM-63		P
11.0	Luminous Efficay		P
	Calculation	See table 1	P
12.0	Test Methodes for Color Characteristics of SSL Products		P
	Measurements	See table 1	P
13.0	Uncertainty statement		N

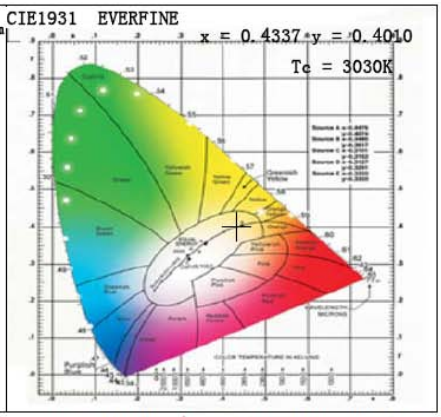
Table 1	**Test data**		
Model:	4pcs IL-MO1385K3 with IL-D595O-1-10		
Rated Voltage:	200-240VAC	Rated Power (W):	30
Rated luminous flux (lm):	N	Ambient temperature 25 ±1 (°C):	25.0
Test item		**Measured Value**	
		Integrating Sphere	**Goniophotometer**
Key Photometric Results			
Luminous Efficacy (Lumens/Watt)		---	120.82
Total Luminous Flux (Lumens)		---	3478.4
Peak Intensity (cd)		---	2000
Total Radiant Flux (Watts)		10.744	---
Correlated Color Temperature (CCT)		3030	---
Color Rendering Index (CRI)		84.1	---
Chromaticity (Chroma x / Chroma y)		0.4337 / 0.4010	---
Chromaticity (Chroma u' / Chroma v')		0.2498 / 0.5197	---
Duv Value		-7.80e-04	---
Stabilization Time (Light and Power) (Minutes)		30	30
Total Run Time (Minutes)		60	90
Electrical Input Results			
Input Power (Watts)		---	28.79
Input Voltage (Volts AC)		---	240.3
Input Current (Amps)		---	0.1289
Input Frequency (Hertz)		---	50.0
Power Factor		---	0.9296
Additional Information			
Test Geometry Configuration		4π	Type C
Ambient Temperature (°C):		25.0	25.0
ISTMT (In-Situ Temperature Measurement) (°C):		N	
Supplementary Information: - Absorbtion Correction used: Yes - Stabilisation was considered reached by: the variation (maximum-minimum) of at least 3 readings of the light output and electrical power over a period of 30 minutes is less than 0.5%.			

Table 2	Spectrum Test
Model:	4pcs IL-MO1385K3 with IL-D595O-1-10

Spectrum



Spectral Distribution



CIE1931 Chromaticity Diagram

Colorimetric Quantities

Chromaticity Coordinate: x = 0.4337 y = 0.4010 / u' = 0.2498 v' = 0.5197 (duv=-7.80e-04)

Tc= 3030K Prcp WL: λ d=583.0nm Purity=50.5%

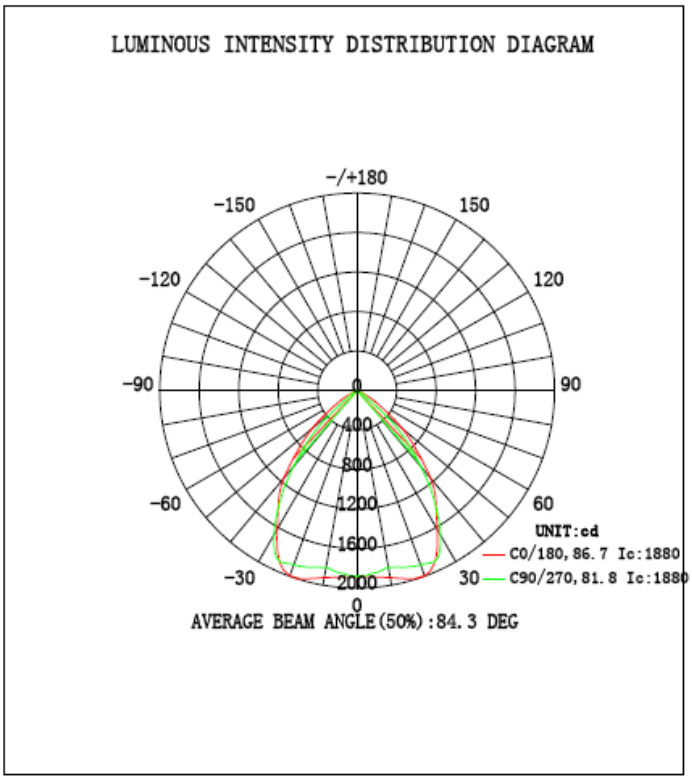
Peak WL: λp=606nm Half Width: Δλp=129.8nm Ratio:R=24.8% G=72.4% B=2.8%

Render Index: Ra = 84.1

R1 =84	R2 =94	R3 =94	R4 =81	R5 =84	R6 =93	R7 =82
R8 =61	R9 =16	R10=87	R11=80	R12=72	R13=87	R14=98	R15=77

Table 3	Luminous intensity distribution diagram and C0 Plane Isolux Diagram
Model:	4pcs IL-MO1385K3 with IL-D595O-1-10

DATA OF LAMP		PHOTOMETRIC DATA		Eff: 120.82 lm/W	
MODEL	3000K-4	Imax(cd)	2000	S/MH(C0/180)	1.23
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH(C90/270)	1.17
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	3478.4	η UP,DN(C0-180)	0.1,49.9
NOMINAL FLUX(lm)	3478.37	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.1,49.9
LAMPS INSIDE	1	η up(%)	0.1	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	240	η down(%)	99.9	CIBSE SHR MAX	1.35



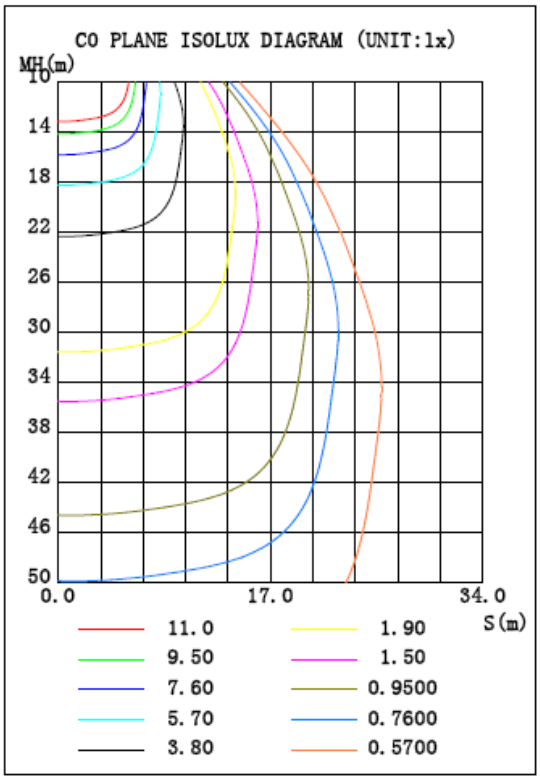


Table 4	Isocandela Diagram
Model:	4pcs IL-MO1385K3 with IL-D595O-1-10

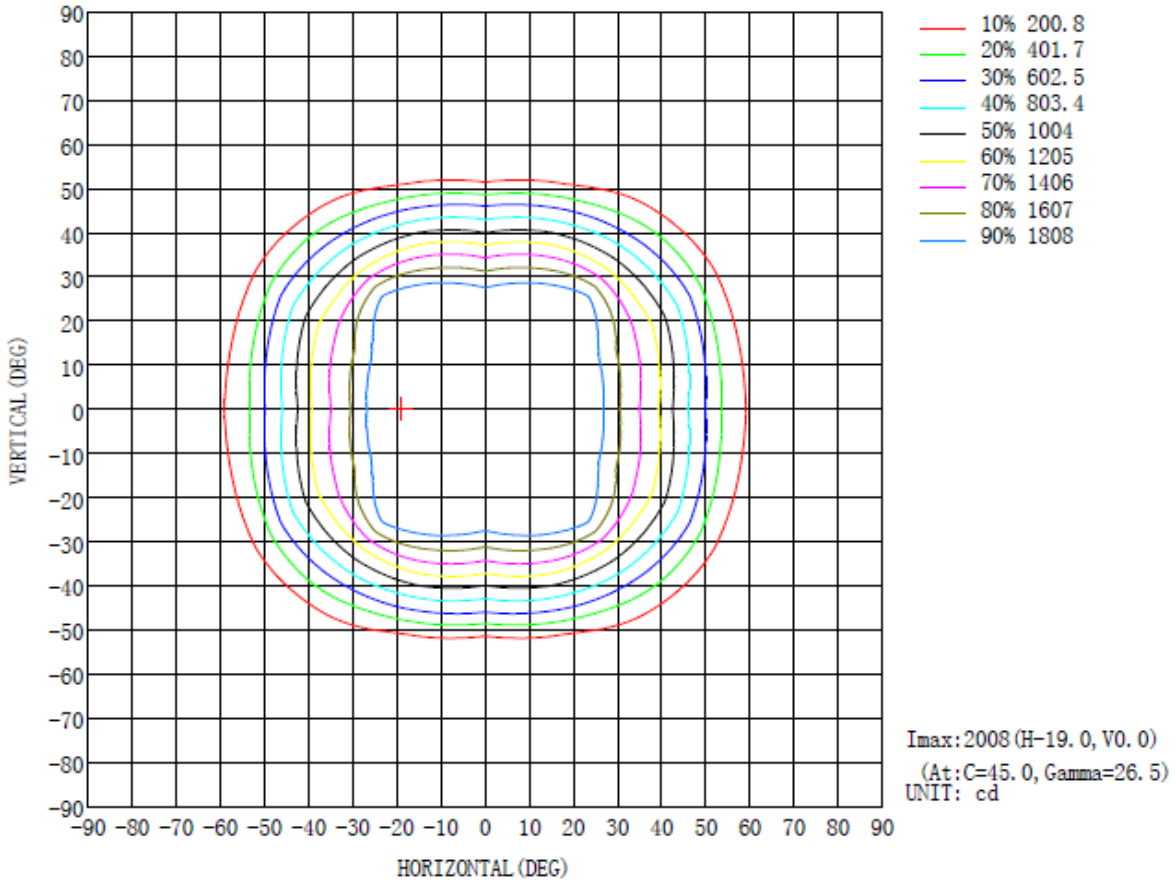
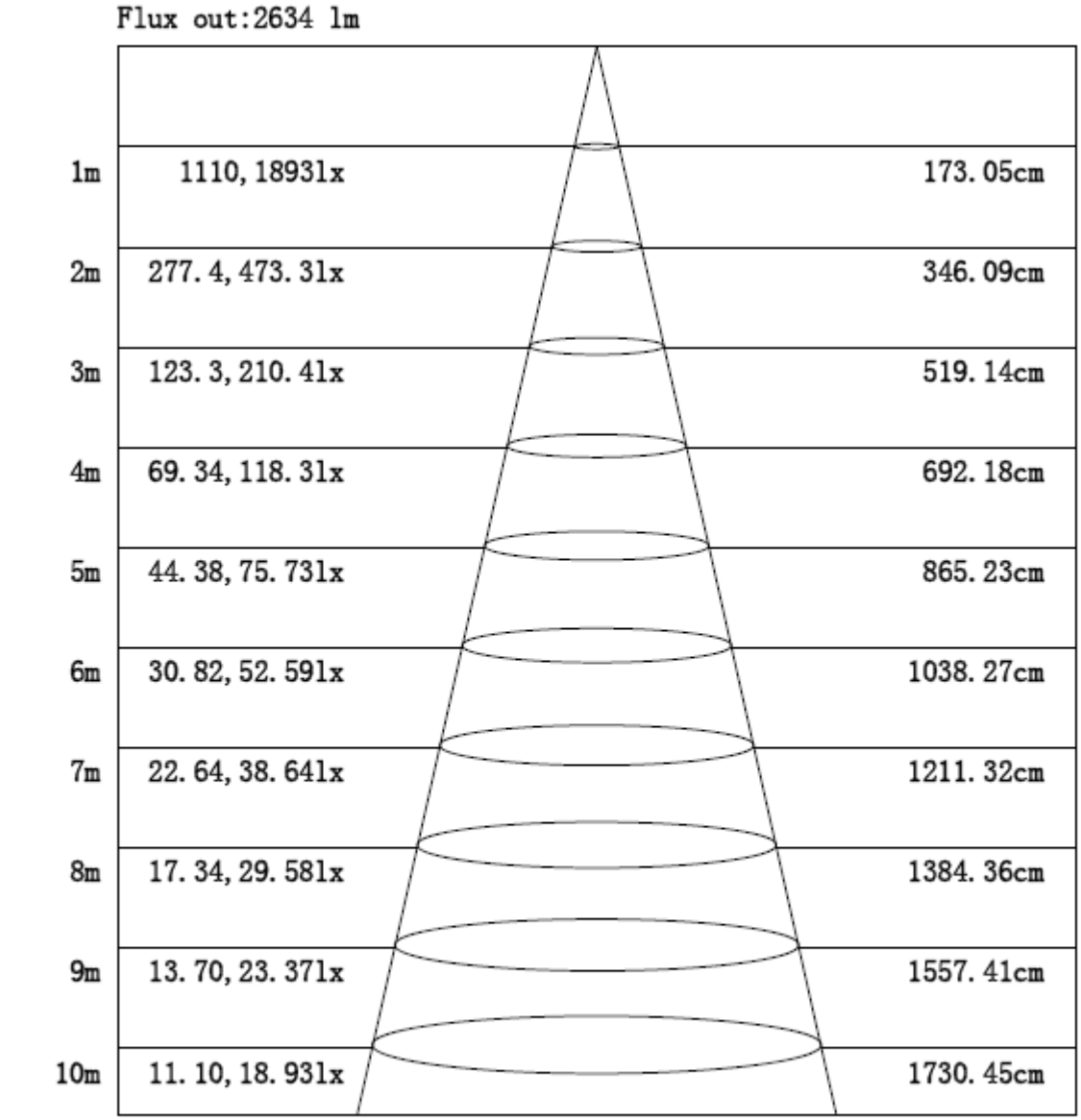


Table 5	AAI Figure
Model:	4pcs IL-MO1385K3 with IL-D595O-1-10



Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

Table 6	Isolux Diagram
Model:	4pcs IL-MO1385K3 with IL-D595O-1-10

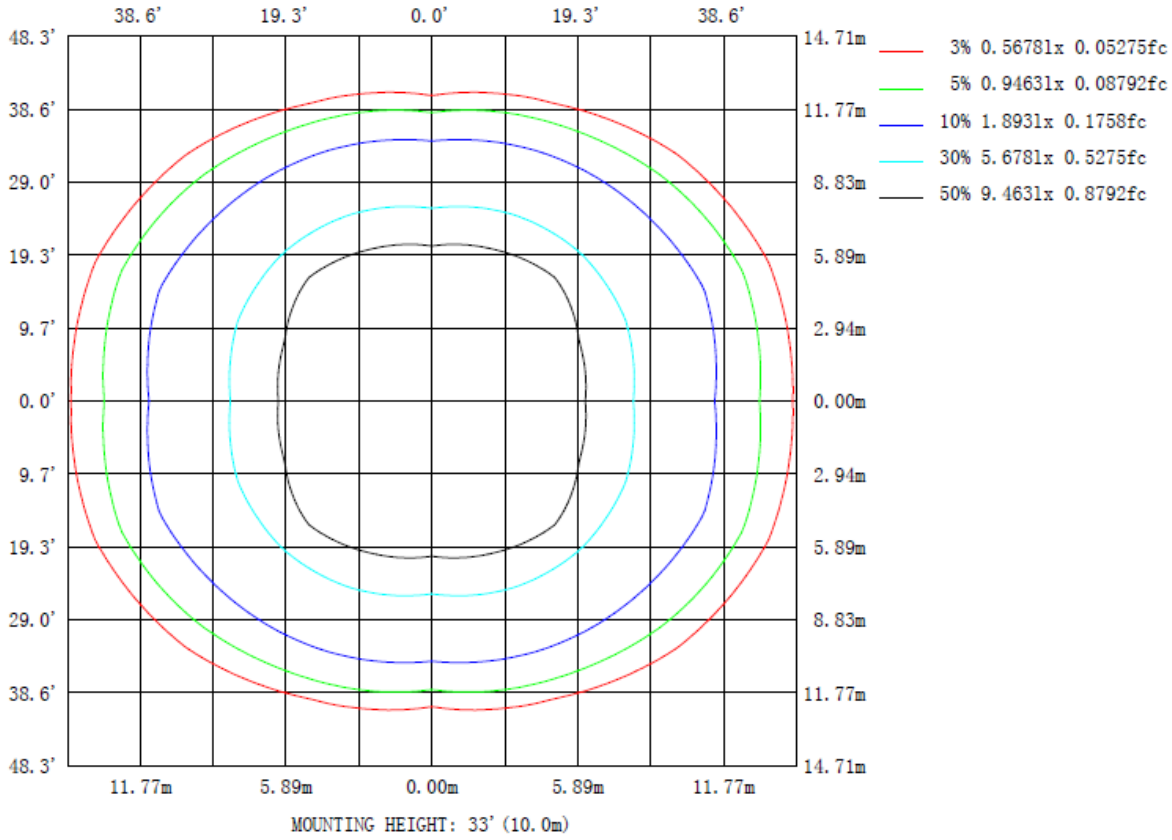


Table 7	Zonal Flux Diagram
Model:	4pcs IL-MO1385K3 with IL-D595O-1-10

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum.lamp
5	1894	1874	1855	1874	1894	1874	1855	1874	0- 5	44.88	44.88	1.29,1.29
10	1923	1868	1820	1868	1923	1868	1820	1868	5- 10	133.9	178.8	5.14,5.14
15	1972	1877	1853	1877	1972	1877	1853	1877	10- 15	223.0	401.8	11.6,11.6
20	1993	1944	1875	1944	1993	1944	1875	1944	15- 20	316.3	718.1	20.6,20.6
25	1880	1997	1892	1997	1880	1997	1892	1997	20- 25	406.6	1125	32.3,32.3
30	1624	1972	1688	1972	1624	1972	1688	1972	25- 30	474.2	1599	46,46
35	1394	1745	1365	1745	1394	1745	1365	1745	30- 35	491.9	2091	60.1,60.1
40	1157	1300	1004	1300	1157	1300	1004	1300	35- 40	459.2	2550	73.3,73.3
45	849.2	918.3	673.9	918.3	849.2	918.3	673.9	918.3	40- 45	383.9	2934	84.3,84.3
50	593.2	563.4	290.7	563.4	593.2	563.4	290.7	563.4	45- 50	283.8	3218	92.5,92.5
55	330.4	265.5	108.6	265.5	330.4	265.5	108.6	265.5	50- 55	163.3	3381	97.2,97.2
60	177.9	52.97	27.92	52.97	177.9	52.97	27.92	52.97	55- 60	71.64	3453	99.3,99.3
65	42.52	4.643	0.5759	4.643	42.52	4.643	0.5759	4.643	60- 65	19.82	3473	99.8,99.8
70	0.9805	0.4612	0.1223	0.4612	0.9805	0.4612	0.1223	0.4612	65- 70	1.558	3474	99.9,99.9
75	0.4424	0.0863	0.0994	0.0863	0.4424	0.0863	0.0994	0.0863	70- 75	0.1761	3474	99.9,99.9
80	0.1747	0.0585	0.0778	0.0585	0.1747	0.0585	0.0778	0.0585	75- 80	0.0741	3474	99.9,99.9
85	0.0742	0.0345	0.0471	0.0345	0.0742	0.0345	0.0471	0.0345	80- 85	0.0343	3474	99.9,99.9
90	0.0278	0.0276	0.0213	0.0276	0.0278	0.0276	0.0213	0.0276	85- 90	0.0155	3474	99.9,99.9
95	0.0667	0.0550	0.0372	0.0550	0.0667	0.0550	0.0372	0.0550	90- 95	0.0242	3474	99.9,99.9
100	0.1530	0.0731	0.0457	0.0731	0.1530	0.0731	0.0457	0.0731	95-100	0.0446	3474	99.9,99.9
105	0.1677	0.0942	0.0573	0.0942	0.1677	0.0942	0.0573	0.0942	100-105	0.0542	3475	99.9,99.9
110	0.1956	0.1328	0.0942	0.1328	0.1956	0.1328	0.0942	0.1328	105-110	0.0654	3475	99.9,99.9
115	0.1527	0.1973	0.1619	0.1973	0.1527	0.1973	0.1619	0.1973	110-115	0.0852	3475	99.9,99.9
120	0.3031	0.2787	0.2594	0.2787	0.3031	0.2787	0.2594	0.2787	115-120	0.1157	3475	99.9,99.9
125	0.3631	0.3843	0.3860	0.3843	0.3631	0.3843	0.3860	0.3843	120-125	0.1548	3475	99.9,99.9
130	0.5431	0.5117	0.5350	0.5117	0.5431	0.5117	0.5350	0.5117	125-130	0.1984	3475	99.9,99.9
135	0.8183	0.7617	0.7966	0.7617	0.8183	0.7617	0.7966	0.7617	130-135	0.2579	3475	99.9,99.9
140	1.076	1.087	1.122	1.087	1.076	1.087	1.122	1.087	135-140	0.3490	3476	99.9,99.9
145	1.299	1.414	1.446	1.414	1.299	1.414	1.446	1.414	140-145	0.4147	3476	99.9,99.9
150	1.558	1.660	1.700	1.660	1.558	1.660	1.700	1.660	145-150	0.4538	3477	99.9,99.9
155	1.802	1.945	1.929	1.945	1.802	1.945	1.929	1.945	150-155	0.4532	3477	100,100
160	2.081	2.174	2.116	2.174	2.081	2.174	2.116	2.174	155-160	0.4284	3477	100,100
165	2.219	2.249	2.179	2.249	2.219	2.249	2.179	2.249	160-165	0.3608	3478	100,100
170	2.405	2.389	2.234	2.389	2.405	2.389	2.234	2.389	165-170	0.2721	3478	100,100
175	2.688	2.681	2.347	2.681	2.688	2.681	2.347	2.681	170-175	0.1753	3478	100,100
180	3.177	3.063	2.892	3.063	3.177	3.063	2.892	3.063	175-180	0.0666	3478	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Table 8	Luminous Distribution Intensity Data
Model:	4pcs IL-MO1385K3 with IL-D595O-1-10

Table—1 UNIT: cd

C (DEG) / γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	1880	1880	1880	1880	1880	1880	1880	1880	1880	1880	1880	1880	1880	1880	1880	1880			
5	1894	1886	1874	1860	1855	1860	1874	1886	1894	1886	1874	1860	1855	1860	1874	1886			
10	1923	1901	1868	1832	1820	1832	1868	1901	1923	1901	1868	1832	1820	1832	1868	1901			
15	1972	1938	1877	1862	1853	1862	1877	1938	1972	1938	1877	1862	1853	1862	1877	1938			
20	1993	1962	1944	1902	1875	1902	1944	1962	1993	1962	1944	1902	1875	1902	1944	1962			
25	1880	1897	1997	1941	1892	1941	1997	1897	1880	1897	1997	1941	1892	1941	1997	1897			
30	1624	1714	1972	1837	1688	1837	1972	1714	1624	1714	1972	1837	1688	1837	1972	1714			
35	1394	1487	1745	1534	1365	1534	1745	1487	1394	1487	1745	1534	1365	1534	1745	1487			
40	1157	1290	1300	1181	1004	1181	1300	1290	1157	1290	1300	1181	1004	1181	1300	1290			
45	849	998	918	802	674	802	918	998	849	998	918	802	674	802	918	998			
50	593	702	563	429	291	429	563	702	593	702	563	429	291	429	563	702			
55	330	364	266	119	109	119	266	364	330	364	266	119	109	119	266	364			
60	178	137	53.0	39.0	27.9	39.0	53.0	137	178	137	53.0	39.0	27.9	39.0	53.0	137			
65	42.5	21.6	4.64	1.73	0.58	1.73	4.64	21.6	42.5	21.6	4.64	1.73	0.58	1.73	4.64	21.6			
70	0.98	0.89	0.46	0.18	0.12	0.18	0.46	0.89	0.98	0.89	0.46	0.18	0.12	0.18	0.46	0.89			
75	0.44	0.37	0.09	0.09	0.10	0.09	0.09	0.37	0.44	0.37	0.09	0.09	0.10	0.09	0.09	0.37			
80	0.17	0.11	0.06	0.07	0.08	0.07	0.06	0.11	0.17	0.11	0.06	0.07	0.08	0.07	0.06	0.11			
85	0.07	0.04	0.03	0.04	0.05	0.04	0.03	0.04	0.07	0.04	0.03	0.04	0.05	0.04	0.03	0.04			
90	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.03			
95	0.07	0.10	0.06	0.04	0.04	0.04	0.06	0.10	0.07	0.10	0.06	0.04	0.04	0.04	0.06	0.10			
100	0.15	0.14	0.07	0.06	0.05	0.06	0.07	0.14	0.15	0.14	0.07	0.06	0.05	0.06	0.07	0.14			
105	0.17	0.16	0.09	0.08	0.06	0.08	0.09	0.16	0.17	0.16	0.09	0.08	0.06	0.08	0.09	0.16			
110	0.20	0.19	0.13	0.11	0.09	0.11	0.13	0.19	0.20	0.19	0.13	0.11	0.09	0.11	0.13	0.19			
115	0.15	0.24	0.20	0.17	0.16	0.17	0.20	0.24	0.15	0.24	0.20	0.17	0.16	0.17	0.20	0.24			
120	0.30	0.31	0.28	0.27	0.26	0.27	0.28	0.31	0.30	0.31	0.28	0.27	0.26	0.27	0.28	0.31			
125	0.36	0.40	0.38	0.40	0.39	0.40	0.38	0.40	0.36	0.40	0.38	0.40	0.39	0.40	0.38	0.40			
130	0.54	0.51	0.51	0.54	0.54	0.54	0.51	0.51	0.54	0.51	0.51	0.54	0.54	0.54	0.51	0.51			
135	0.82	0.78	0.76	0.80	0.80	0.80	0.76	0.78	0.82	0.78	0.76	0.80	0.80	0.80	0.76	0.78			
140	1.08	1.07	1.09	1.11	1.12	1.11	1.09	1.07	1.08	1.07	1.09	1.11	1.12	1.11	1.09	1.07			
145	1.30	1.37	1.41	1.47	1.45	1.47	1.41	1.37	1.30	1.37	1.41	1.47	1.45	1.47	1.41	1.37			
150	1.56	1.65	1.66	1.71	1.70	1.71	1.66	1.65	1.56	1.65	1.66	1.71	1.70	1.71	1.66	1.65			
155	1.80	1.92	1.94	1.97	1.93	1.97	1.94	1.92	1.80	1.92	1.94	1.97	1.93	1.97	1.94	1.92			
160	2.08	2.15	2.17	2.15	2.12	2.15	2.17	2.15	2.08	2.15	2.17	2.15	2.12	2.15	2.17	2.15			
165	2.22	2.32	2.25	2.18	2.18	2.18	2.25	2.32	2.22	2.32	2.25	2.18	2.18	2.18	2.25	2.32			
170	2.41	2.47	2.39	2.27	2.23	2.27	2.39	2.47	2.41	2.47	2.39	2.27	2.23	2.27	2.39	2.47			
175	2.69	2.77	2.68	2.53	2.35	2.53	2.68	2.77	2.69	2.77	2.68	2.53	2.35	2.53	2.68	2.77			
180	3.18	3.17	3.06	2.95	2.89	2.95	3.06	3.17	3.18	3.17	3.06	2.95	2.89	2.95	3.06	3.17			

Attachment 1: Equipment List

Equipment	Model	calibration date	Calibration due date
Goniophotometer	EVERFINE GO R5000-2M2D	2018-03-08	2019-03-07
Temperature & Humidity Datalogger	Testo 608-H1	2018-03-08	2019-03-07
Digital power meter	EVERFINE PF2010A-V1-CAN	2018-03-08	2019-03-07
AC power source	EVERFINE DPS1060	2018-03-08	2019-03-07
DC power source	EVERFINE WY12010	2018-03-08	2019-03-07
Luminance meter	EVERFINE CX-2B	2018-03-08	2019-03-07
Standard lamp	EVERFINE 28V/10A/500cd	2018-03-08	2019-03-07
Standard lamp	EVERFINE D908	2018-03-08	2019-03-07
Integrating Sphere and High accuracy array spectroradio meter system	EVERFINE HAAS-2000	2018-03-08	2019-03-07
Standard lamp	EVERFINE D204	2018-03-08	2019-03-07

Attachment 2: Photo document

Model: 4pcs IL-MO1385K3 with IL-D595O-1-10

Photo 1

Photo 2

Photo 3

Photo 4

====== End of Report ======