中国认可
国际互认
检测
TESTING
CNAS L6478

TEST REPORT

Reference No.....	:	WTS18F05113598N
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.....	:	3pcs IL-MO1385K4 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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Approved by:

Kevin 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	3pcs IL-MO1385K4 with IL-D595O-1-10	200-240VAC, 50Hz, 30W	4000K	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

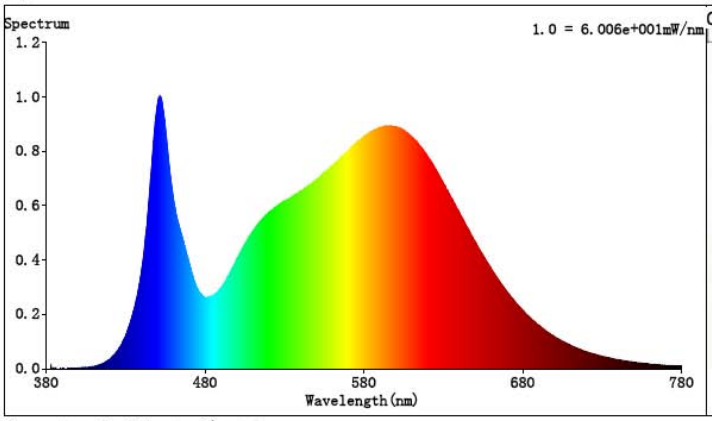
Table 1	**Test data**		
Model:	3pcs IL-MO1385K4 with IL-D595O-1-10		
Rated Voltage:	200-240VAC	Rated Power (W):	30
Rated luminous flux (lm):	N	Ambient temperature 25 ±1 (°C):	25.0
Test item		**Measured Value**	
		Integrating Sphere	**Goniophotometer**
Key Photometric Results			
Luminous Efficacy (Lumens/Watt)		---	125.54
Total Luminous Flux (Lumens)		---	3621.6
Peak Intensity (cd)		---	2091
Total Radiant Flux (Watts)		11.023	---
Correlated Color Temperature (CCT)		3912	---
Color Rendering Index (CRI)		83.6	---
Chromaticity (Chroma x / Chroma y)		0.3838 / 0.3771	---
Chromaticity (Chroma u' / Chroma v')		0.2272 / 0.5022	---
Duv Value		-7.92e-04	---
Stabilization Time (Light and Power) (Minutes)		30	30
Total Run Time (Minutes)		60	90
Electrical Input Results			
Input Power (Watts)		---	28.85
Input Voltage (Volts AC)		---	240.2
Input Current (Amps)		---	0.1292
Input Frequency (Hertz)		---	50.0
Power Factor		---	0.9291
Additional Information			
Test Geometry Configuration		4π	Type C
Ambient Temperature (°C):		25.0	25.0
ISTMT (In-Situ Temperature Measurement) (°C):		N	

Supplementary Information:

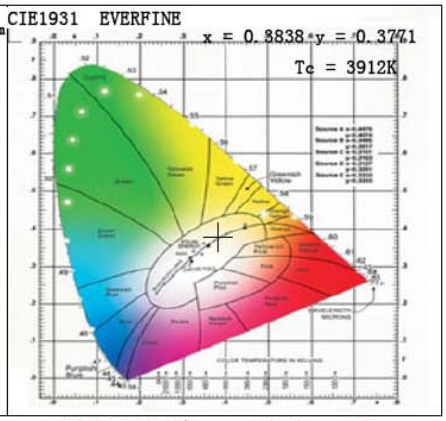
- Absorbtion Correction used: Yes
- Stabilisation was considered reached by: the variation (maximum-minimum) of at least 3 readings of the light output and electrical power over a period of 30 minutes is less than 0.5%.

Table 2	Spectrum Test
Model:	3pcs IL-MO1385K4 with IL-D595O-1-10

Spectrum



Spectral Distribution



CIE1931 Chromaticity Diagram

Colorimetric Quantities

Chromaticity Coordinate: x = 0.3838 y = 0.3771 / u' = 0.2272 v' = 0.5022 (duv=-7.92e-04)

Tc= 3912K Prcp WL: λ d=579.8nm Purity=28.4%

Peak WL: λp=451nm Half Width: Δλp=21.9nm Ratio:R=20.3% G=76.4% B=3.3%

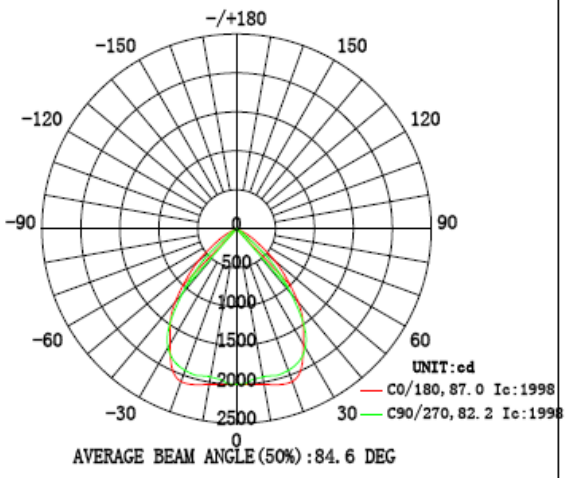
Render Index: Ra = 83.6

R1 =82	R2 =90	R3 =95	R4 =82	R5 =82	R6 =86	R7 =86	
R8 =65	R9 =11	R10=77	R11=81	R12=63	R13=84	R14=98	R15=76

Table 3	Luminous intensity distribution diagram and C0 Plane Isolux Diagram
Model:	3pcs IL-MO1385K4 with IL-D595O-1-10

DATA OF LAMP		PHOTOMETRIC DATA	Eff: 125.54 lm/W		
MODEL	4000K-3	Imax(cd)	2091	S/MH(C0/180)	1.23
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH(C90/270)	1.18
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	3621.6	η UP,DN(C0-180)	0.1,49.9
NOMINAL FLUX(lm)	3621.59	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

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):84.6 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)

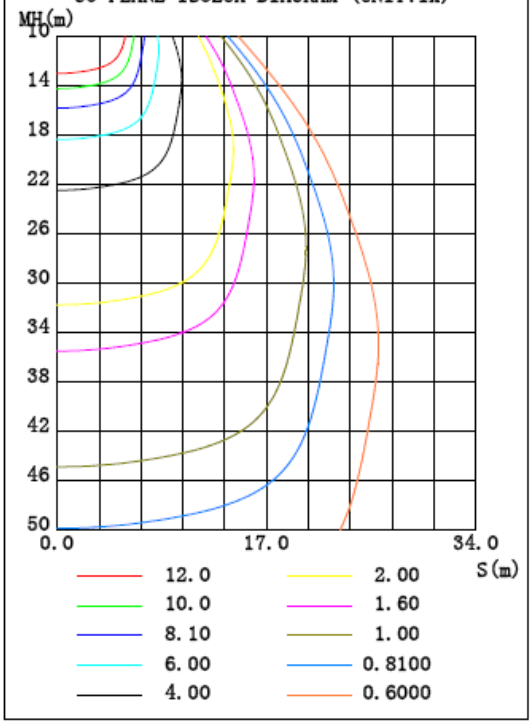


Table 4	Isocandela Diagram
Model:	3pcs IL-MO1385K4 with IL-D595O-1-10

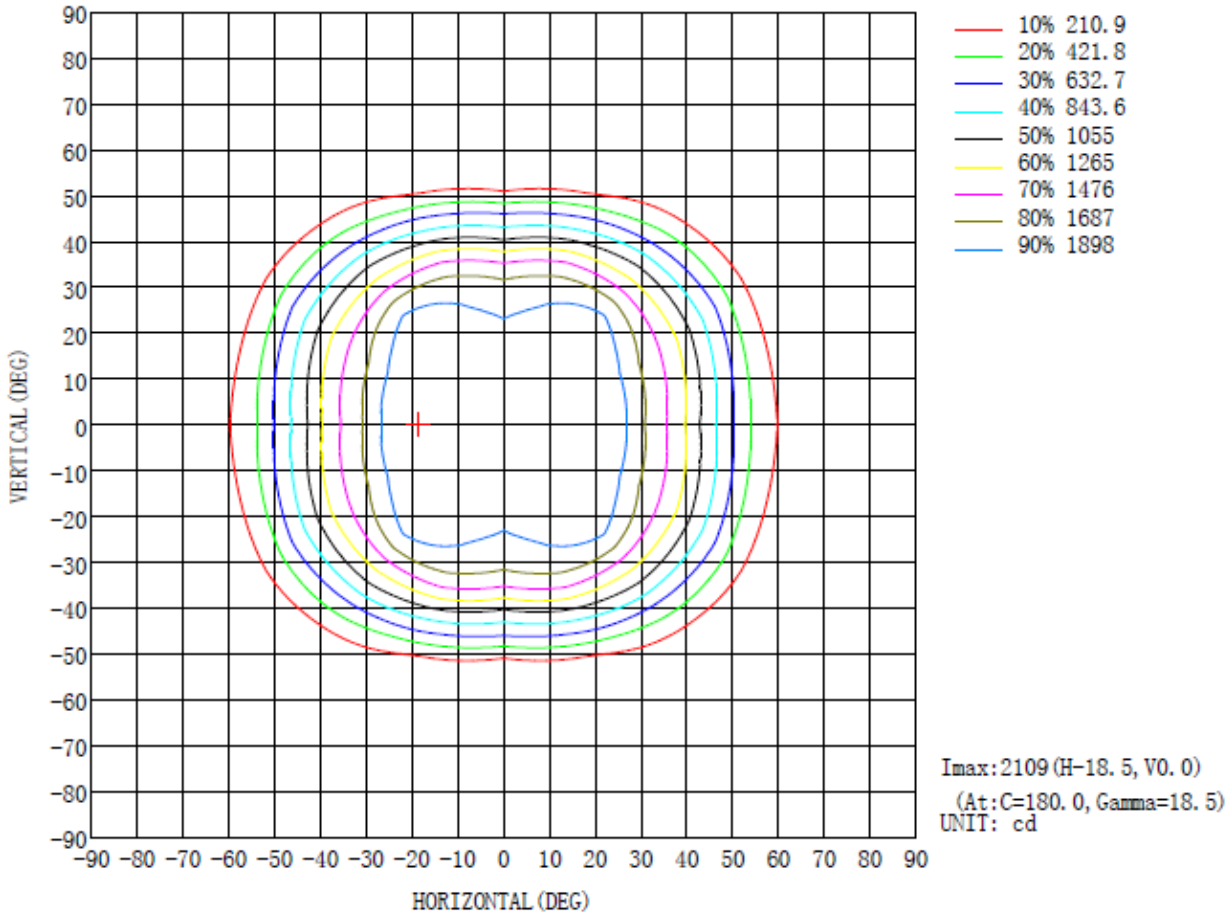
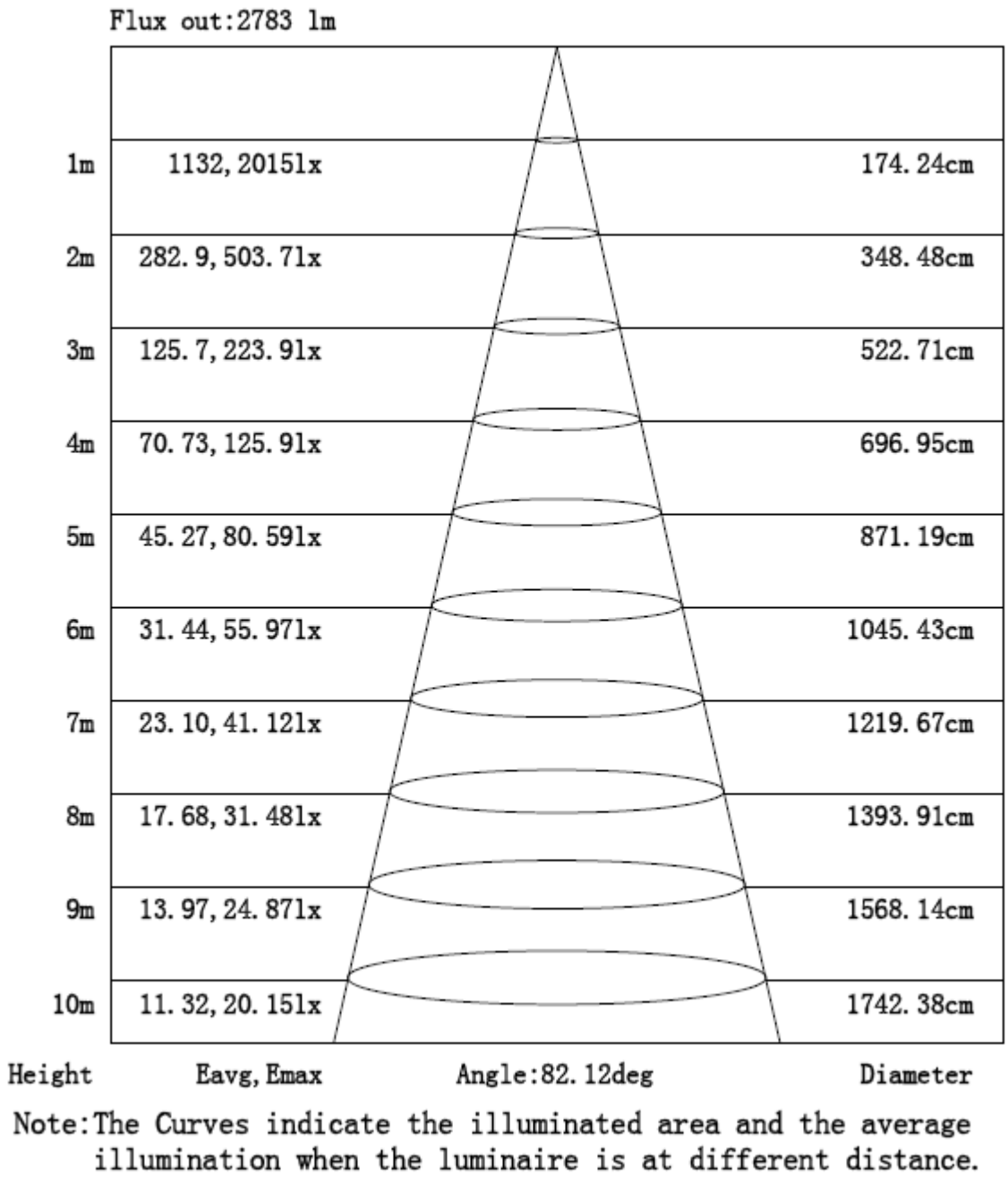


Table 5	AAI Figure
Model:	3pcs IL-MO1385K4 with IL-D595O-1-10



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

Table 6	Isolux Diagram
Model:	3pcs IL-MO1385K4 with IL-D595O-1-10

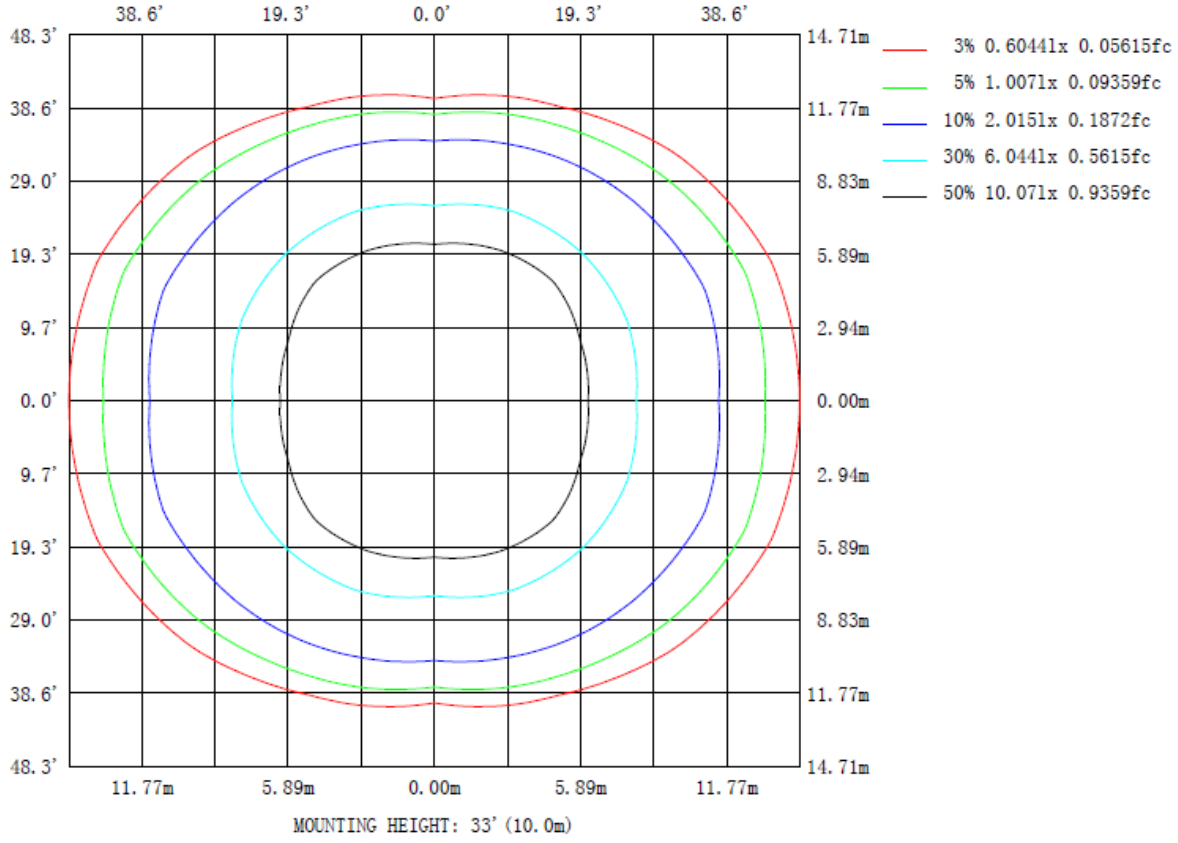


Table 7	Zonal Flux Diagram
Model:	3pcs IL-MO1385K4 with IL-D595O-1-10

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum. lamp
5	2006	1994	1960	1994	2006	1994	1960	1994	0- 5	47.65	47.65	1.32, 1.32
10	2031	1965	1932	1965	2031	1965	1932	1965	5- 10	141.4	189.1	5.22, 5.22
15	2073	1970	1953	1970	2073	1970	1953	1970	10- 15	234.9	423.9	11.7, 11.7
20	2088	2024	1936	2024	2088	2024	1936	2024	15- 20	330.2	754.2	20.8, 20.8
25	1968	2042	1885	2042	1968	2042	1885	2042	20- 25	419.1	1173	32.4, 32.4
30	1712	1975	1764	1975	1712	1975	1764	1975	25- 30	484.2	1657	45.8, 45.8
35	1487	1722	1503	1722	1487	1722	1503	1722	30- 35	509.4	2167	59.8, 59.8
40	1229	1353	1087	1353	1229	1353	1087	1353	35- 40	484.0	2651	73.2, 73.2
45	911.1	989.9	703.6	989.9	911.1	989.9	703.6	989.9	40- 45	407.0	3058	84.4, 84.4
50	639.1	591.4	274.1	591.4	639.1	591.4	274.1	591.4	45- 50	296.6	3354	92.6, 92.6
55	369.5	263.7	111.1	263.7	369.5	263.7	111.1	263.7	50- 55	167.6	3522	97.2, 97.2
60	202.3	47.52	19.94	47.52	202.3	47.52	19.94	47.52	55- 60	72.84	3595	99.3, 99.3
65	54.03	4.253	0.4627	4.253	54.03	4.253	0.4627	4.253	60- 65	20.38	3615	99.8, 99.8
70	1.110	0.3622	0.1013	0.3622	1.110	0.3622	0.1013	0.3622	65- 70	1.858	3617	99.9, 99.9
75	0.4381	0.0703	0.0872	0.0703	0.4381	0.0703	0.0872	0.0703	70- 75	0.1709	3617	99.9, 99.9
80	0.1363	0.0574	0.0676	0.0574	0.1363	0.0574	0.0676	0.0574	75- 80	0.0646	3617	99.9, 99.9
85	0.0605	0.0351	0.0449	0.0351	0.0605	0.0351	0.0449	0.0351	80- 85	0.0303	3617	99.9, 99.9
90	0.0316	0.0280	0.0202	0.0280	0.0316	0.0280	0.0202	0.0280	85- 90	0.0160	3617	99.9, 99.9
95	0.0416	0.0491	0.0327	0.0491	0.0416	0.0491	0.0327	0.0491	90- 95	0.0224	3617	99.9, 99.9
100	0.1196	0.0685	0.0420	0.0685	0.1196	0.0685	0.0420	0.0685	95-100	0.0381	3617	99.9, 99.9
105	0.1490	0.0894	0.0538	0.0894	0.1490	0.0894	0.0538	0.0894	100-105	0.0500	3617	99.9, 99.9
110	0.1729	0.1335	0.0895	0.1335	0.1729	0.1335	0.0895	0.1335	105-110	0.0624	3618	99.9, 99.9
115	0.1666	0.2018	0.1622	0.2018	0.1666	0.2018	0.1622	0.2018	110-115	0.0848	3618	99.9, 99.9
120	0.3135	0.2964	0.2727	0.2964	0.3135	0.2964	0.2727	0.2964	115-120	0.1201	3618	99.9, 99.9
125	0.3949	0.4144	0.4129	0.4144	0.3949	0.4144	0.4129	0.4144	120-125	0.1638	3618	99.9, 99.9
130	0.6011	0.5580	0.5795	0.5580	0.6011	0.5580	0.5795	0.5580	125-130	0.2156	3618	99.9, 99.9
135	0.8870	0.8206	0.8667	0.8206	0.8870	0.8206	0.8667	0.8206	130-135	0.2815	3618	99.9, 99.9
140	1.173	1.173	1.213	1.173	1.173	1.173	1.213	1.173	135-140	0.3767	3619	99.9, 99.9
145	1.424	1.528	1.561	1.528	1.424	1.528	1.561	1.528	140-145	0.4490	3619	99.9, 99.9
150	1.706	1.813	1.839	1.813	1.706	1.813	1.839	1.813	145-150	0.4931	3620	99.9, 99.9
155	1.947	2.102	2.059	2.102	1.947	2.102	2.059	2.102	150-155	0.4918	3620	100, 100
160	2.235	2.361	2.277	2.361	2.235	2.361	2.277	2.361	155-160	0.4633	3621	100, 100
165	2.371	2.436	2.315	2.436	2.371	2.436	2.315	2.436	160-165	0.3891	3621	100, 100
170	2.558	2.585	2.410	2.585	2.558	2.585	2.410	2.585	165-170	0.2932	3621	100, 100
175	2.847	2.869	2.522	2.869	2.847	2.869	2.522	2.869	170-175	0.1880	3622	100, 100
180	3.339	3.268	3.113	3.268	3.339	3.268	3.113	3.268	175-180	0.0710	3622	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Table 8	**Luminous Distribution Intensity Data**
Model:	3pcs IL-MO1385K4 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	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998			
5	2006	2001	1994	1970	1960	1970	1994	2001	2006	2001	1994	1970	1960	1970	1994	2001			
10	2031	2013	1965	1940	1932	1940	1965	2013	2031	2013	1965	1940	1932	1940	1965	2013			
15	2073	2021	1970	1959	1953	1959	1970	2021	2073	2021	1970	1959	1953	1959	1970	2021			
20	2088	2044	2024	1964	1936	1964	2024	2044	2088	2044	2024	1964	1936	1964	2024	2044			
25	1968	1979	2042	1939	1885	1939	2042	1979	1968	1979	2042	1939	1885	1939	2042	1979			
30	1712	1786	1975	1862	1764	1862	1975	1786	1712	1786	1975	1862	1764	1862	1975	1786			
35	1487	1563	1722	1657	1503	1657	1722	1563	1487	1563	1722	1657	1503	1657	1722	1563			
40	1229	1347	1353	1279	1087	1279	1353	1347	1229	1347	1353	1279	1087	1279	1353	1347			
45	911	1032	990	841	704	841	990	1032	911	1032	990	841	704	841	990	1032			
50	639	722	591	432	274	432	591	722	639	722	591	432	274	432	591	722			
55	370	382	264	110	111	110	264	382	370	382	264	110	111	110	264	382			
60	202	144	47.5	29.9	19.9	29.9	47.5	144	202	144	47.5	29.9	19.9	29.9	47.5	144			
65	54.0	23.7	4.25	1.33	0.46	1.33	4.25	23.7	54.0	23.7	4.25	1.33	0.46	1.33	4.25	23.7			
70	1.11	0.97	0.36	0.13	0.10	0.13	0.36	0.97	1.11	0.97	0.36	0.13	0.10	0.13	0.36	0.97			
75	0.44	0.34	0.07	0.07	0.09	0.07	0.07	0.34	0.44	0.34	0.07	0.07	0.09	0.07	0.07	0.34			
80	0.14	0.08	0.06	0.06	0.07	0.06	0.06	0.08	0.14	0.08	0.06	0.06	0.07	0.06	0.06	0.08			
85	0.06	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.06	0.04	0.04	0.04	0.04	0.04	0.04	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	0.04	0.09	0.05	0.04	0.03	0.04	0.05	0.09	0.04	0.09	0.05	0.04	0.03	0.04	0.05	0.09			
100	0.12	0.13	0.07	0.05	0.04	0.05	0.07	0.13	0.12	0.13	0.07	0.05	0.04	0.05	0.07	0.13			
105	0.15	0.15	0.09	0.07	0.05	0.07	0.09	0.15	0.15	0.15	0.09	0.07	0.05	0.07	0.09	0.15			
110	0.17	0.19	0.13	0.11	0.09	0.11	0.13	0.19	0.17	0.19	0.13	0.11	0.09	0.11	0.13	0.19			
115	0.17	0.24	0.20	0.17	0.16	0.17	0.20	0.24	0.17	0.24	0.20	0.17	0.16	0.17	0.20	0.24			
120	0.31	0.32	0.30	0.29	0.27	0.29	0.30	0.32	0.31	0.32	0.30	0.29	0.27	0.29	0.30	0.32			
125	0.39	0.44	0.41	0.42	0.41	0.42	0.41	0.44	0.39	0.44	0.41	0.42	0.41	0.42	0.41	0.44			
130	0.60	0.57	0.56	0.58	0.58	0.58	0.56	0.57	0.60	0.57	0.56	0.58	0.58	0.58	0.56	0.57			
135	0.89	0.87	0.82	0.86	0.87	0.86	0.82	0.87	0.89	0.87	0.82	0.86	0.87	0.86	0.82	0.87			
140	1.17	1.13	1.17	1.21	1.21	1.21	1.17	1.13	1.17	1.13	1.17	1.21	1.21	1.21	1.17	1.13			
145	1.42	1.50	1.53	1.58	1.56	1.58	1.53	1.50	1.42	1.50	1.53	1.58	1.56	1.58	1.53	1.50			
150	1.71	1.81	1.81	1.85	1.84	1.85	1.81	1.81	1.71	1.81	1.81	1.85	1.84	1.85	1.81	1.81			
155	1.95	2.09	2.10	2.14	2.06	2.14	2.10	2.09	1.95	2.09	2.10	2.14	2.06	2.14	2.10	2.09			
160	2.23	2.33	2.36	2.32	2.28	2.32	2.36	2.33	2.23	2.33	2.36	2.32	2.28	2.32	2.36	2.33			
165	2.37	2.50	2.44	2.36	2.31	2.36	2.44	2.50	2.37	2.50	2.44	2.36	2.31	2.36	2.44	2.50			
170	2.56	2.66	2.59	2.44	2.41	2.44	2.59	2.66	2.56	2.66	2.59	2.44	2.41	2.44	2.59	2.66			
175	2.85	2.96	2.87	2.72	2.52	2.72	2.87	2.96	2.85	2.96	2.87	2.72	2.52	2.72	2.87	2.96			
180	3.34	3.36	3.27	3.17	3.11	3.17	3.27	3.36	3.34	3.36	3.27	3.17	3.11	3.17	3.27	3.36			

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: 3pcs IL-MO1385K4 with IL-D595O-1-10

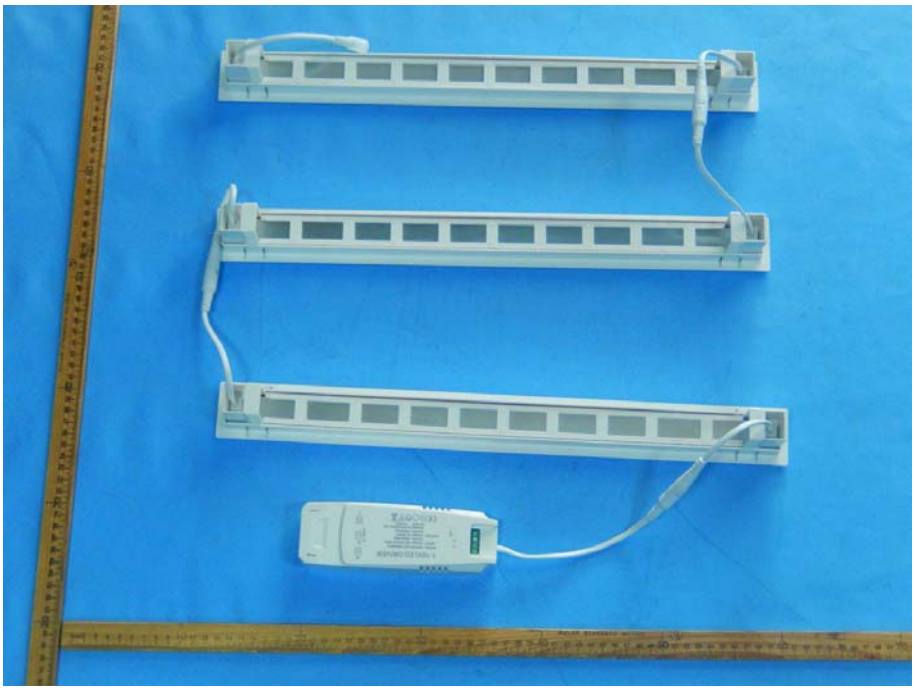


Photo 1

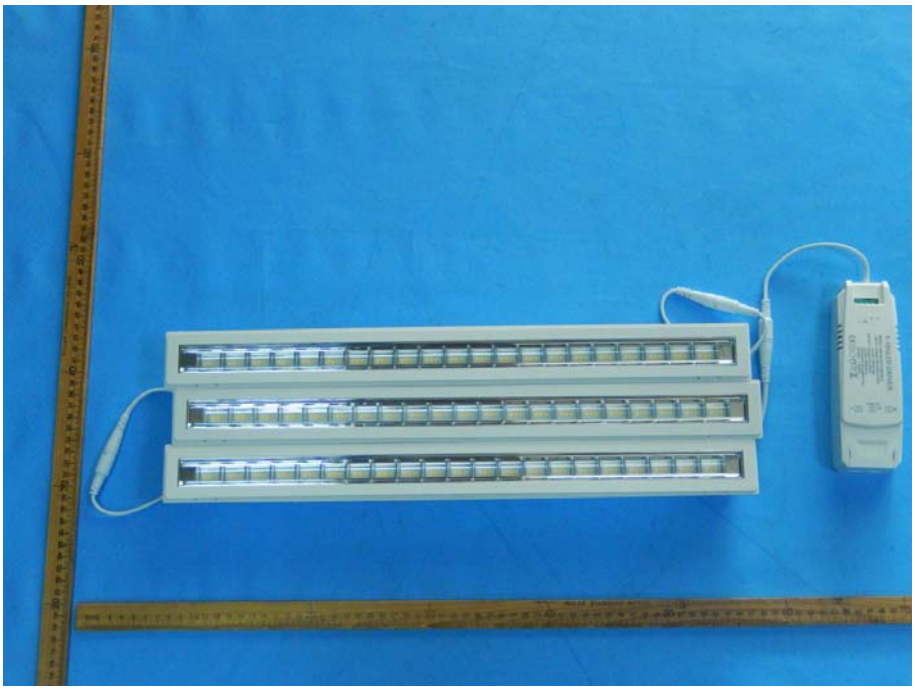


Photo 2

Photo 3

Photo 4

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