



中国认可  
国际互认  
检测  
TESTING  
CNAS L6478



# TEST REPORT

Reference No..... : WTS18F05113597N  
 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..... : 2pcs 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.

Prepared By:

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Compiled by:

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Approved by:



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.										
<p><b>Possible test case verdicts:</b></p> <ul style="list-style-type: none"> <li>- test case does not apply to the test object: .....: N(.A.) / not included in the order</li> <li>- test object does meet the requirement.....: P(ass)</li> <li>- test object does not meet the requirement: .....: F(ail)</li> </ul> <p><b>Possible suffixes to the verdicts:</b></p> <ul style="list-style-type: none"> <li>- suffix for detailed information for the client.....: - C(omment)</li> <li>- suffix for important information for factory inspection.....: - M(anufacturing)</li> </ul>										
<p><b>General remarks:</b></p> <p>"(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.</p> <p>Remark:</p> <ol style="list-style-type: none"> <li>1. Measurement was conducted at voltage 240VAC 50Hz and at a stable ambient temperature 25°C±1°C.</li> <li>2. Detail information for models covered in this report as below:</li> </ol> <table border="1" data-bbox="279 1317 1465 1489"> <thead> <tr> <th>Item</th> <th>Model</th> <th>Ratings</th> <th>CCT</th> <th>Driver</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2pcs IL-MO1385K4 with IL-D595O-1-10</td> <td>200-240VAC, 50Hz, 30W</td> <td>4000K</td> <td>30WDRIVER DIMMABLE</td> </tr> </tbody> </table>	Item	Model	Ratings	CCT	Driver	1	2pcs IL-MO1385K4 with IL-D595O-1-10	200-240VAC, 50Hz, 30W	4000K	30WDRIVER DIMMABLE
Item	Model	Ratings	CCT	Driver						
1	2pcs IL-MO1385K4 with IL-D595O-1-10	200-240VAC, 50Hz, 30W	4000K	30WDRIVER 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 parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ .

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  $\pm 0.2$  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.

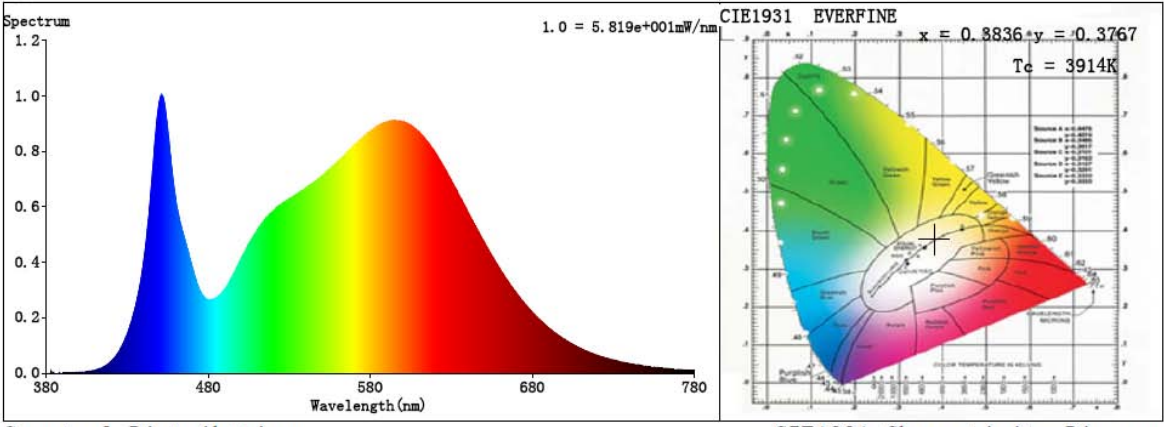
Photometric parameters were measured using a type C goniophotometer and software.

The ambient temperature shall be maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , 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  $0.5^{\circ}$  vertical intervals and  $22.5^{\circ}$  horizontal intervals.

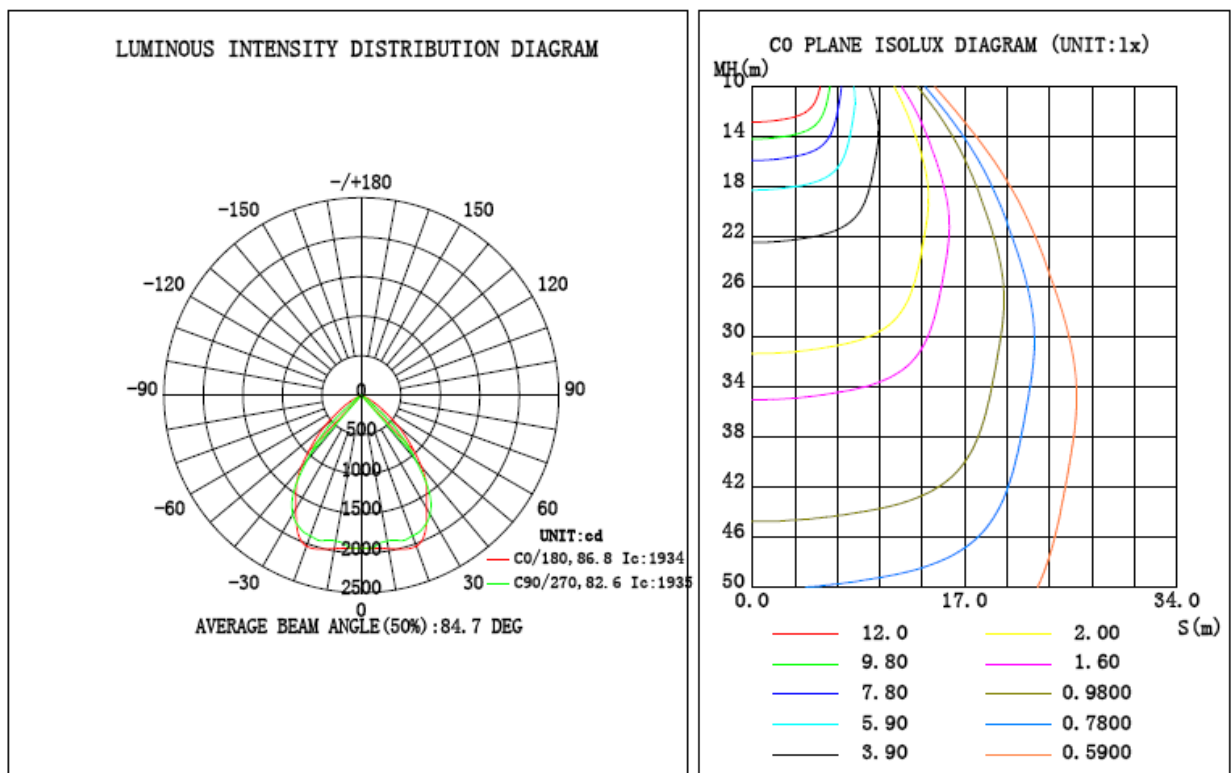
IES LM-79-08			
Clause	Requirement – Test	Measuring result – Remark	Verdict
2.0	Ambient Conditions		P
2.1	General		P
2.2	Air Temperature		P
2.3	Thermal Condition for Mounting SSL Products		P
2.4	Air Movement		P
3.0	Power Supply Characteristics		P
3.1	Waveshape of AC power supply		P
3.2	Voltage regulation		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 relevant 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:	2pcs 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
<b>Key Photometric Results</b>			
Luminous Efficacy (Lumens/Watt)	---		120.88
Total Luminous Flux (Lumens)	---		3547.4
Peak Intensity (cd)	---		2036
Total Radiant Flux (Watts)	10.809		---
Correlated Color Temperature (CCT)	3914		---
Color Rendering Index (CRI)	83.4		---
Chromaticity (Chroma x / Chroma y)	0.3836 / 0.3767		---
Chromaticity (Chroma u' / Chroma v')	0.2272 / 0.5020		---
Duv Value	-9.40e-04		---
Stabilization Time (Light and Power) (Minutes)	30		30
Total Run Time (Minutes)	60		90
<b>Electrical Input Results</b>			
Input Power (Watts)	---		29.35
Input Voltage (Volts AC)	---		240.2
Input Current (Amps)	---		0.1312
Input Frequency (Hertz)	---		50.0
Power Factor	---		0.9313
<b>Additional Information</b>			
Test Geometry Configuration	4π		Type C
Ambient Temperature (°C):	25.0		25.0
ISTMT (In-Situ Temperature Measurement) (°C):	N		
Supplementary Information:			
<ul style="list-style-type: none"> <li>- Absorbion Correction used: Yes</li> <li>- 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%.</li> </ul>			

<b>Table 2</b>	<b>Spectrum Test</b>															
<b>Model:</b>	2pcs IL-MO1385K4 with IL-D595O-1-10															
<p><b>Spectrum</b></p>  <p>Spectral Distribution <span style="float: right;">CIE1931 Chromaticity Diagram</span></p> <p><b>Colorimetric Quantities</b>          Chromaticity Coordinate: <math>x = 0.3836</math> <math>y = 0.3767</math> / <math>u' = 0.2272</math> <math>v' = 0.5020</math> (<math>duv = -9.40e-04</math>)  <math>T_c = 3914K</math>      Prcp WL: <math>\lambda_d = 579.9nm</math>      Purity = 28.2%          Peak WL: <math>\lambda_p = 451nm</math>      Half Width: <math>\Delta\lambda_p = 22.4nm</math>      Ratio: R=20.3% G=76.5% B=3.3%</p> <p>Render Index: <math>R_a = 83.4</math></p> <table border="0"> <tr> <td>R1 =82</td> <td>R2 =90</td> <td>R3 =95</td> <td>R4 =82</td> <td>R5 =82</td> <td>R6 =86</td> <td>R7 =86</td> </tr> <tr> <td>R8 =65</td> <td>R9 =11</td> <td>R10=76</td> <td>R11=81</td> <td>R12=63</td> <td>R13=84</td> <td>R14=98</td> <td>R15=76</td> </tr> </table>		R1 =82	R2 =90	R3 =95	R4 =82	R5 =82	R6 =86	R7 =86	R8 =65	R9 =11	R10=76	R11=81	R12=63	R13=84	R14=98	R15=76
R1 =82	R2 =90	R3 =95	R4 =82	R5 =82	R6 =86	R7 =86										
R8 =65	R9 =11	R10=76	R11=81	R12=63	R13=84	R14=98	R15=76									

<b>Table 3</b>	<b>Luminous intensity distribution diagram and C0 Plane Isolux Diagram</b>
<b>Model:</b>	2pcs IL-MO1385K4 with IL-D595O-1-10

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	4000K-2	$I_{max}$ (cd)	2036	S/MH(C0/180)	1.23
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH(C90/270)	1.19
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	3547.4	$\eta$ UP, DN(C0-180)	0.1, 49.9
NOMINAL FLUX(lm)	3547.4	CIE CLASS	DIRECT	$\eta$ UP, DN(C180-360)	0.1, 49.9
LAMPS INSIDE	1	$\eta$ up(%)	0.1	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	240	$\eta$ down(%)	99.9	CIBSE SHR MAX	1.35



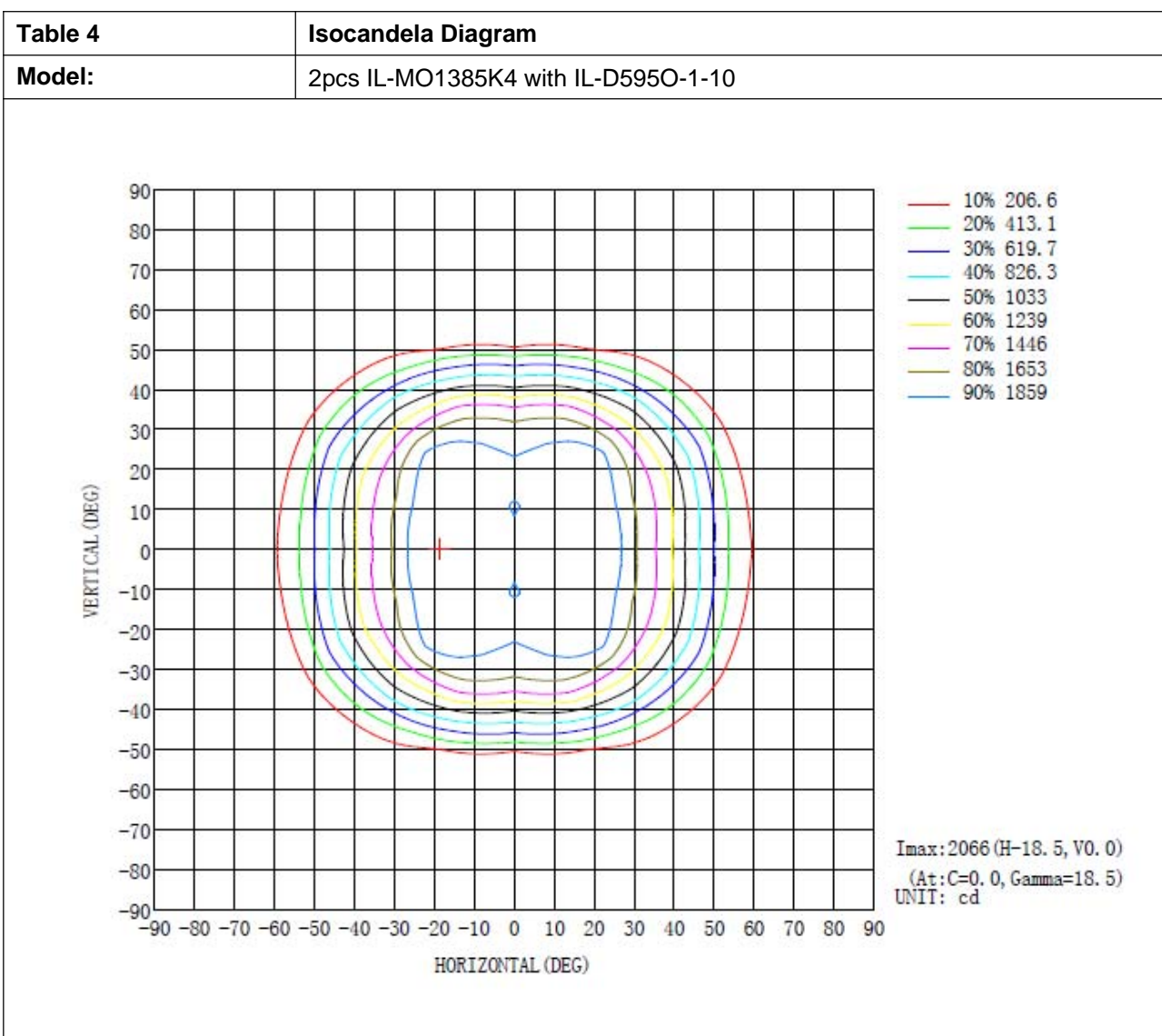




Table 5		AAI Figure	
Model:		2pcs IL-MO1385K4 with IL-D595O-1-10	
Flux out:2688 lm			
1m	1132, 1962lx		173.66cm
2m	283.1, 490.5lx		347.31cm
3m	125.8, 218.0lx		520.97cm
4m	70.78, 122.6lx		694.62cm
5m	45.30, 78.48lx		868.28cm
6m	31.46, 54.50lx		1041.94cm
7m	23.11, 40.04lx		1215.59cm
8m	17.69, 30.65lx		1389.25cm
9m	13.98, 24.22lx		1562.90cm
10m	11.32, 19.62lx		1736.56cm
Height	Eavg, Emax	Angle:81.93deg	Diameter
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.			

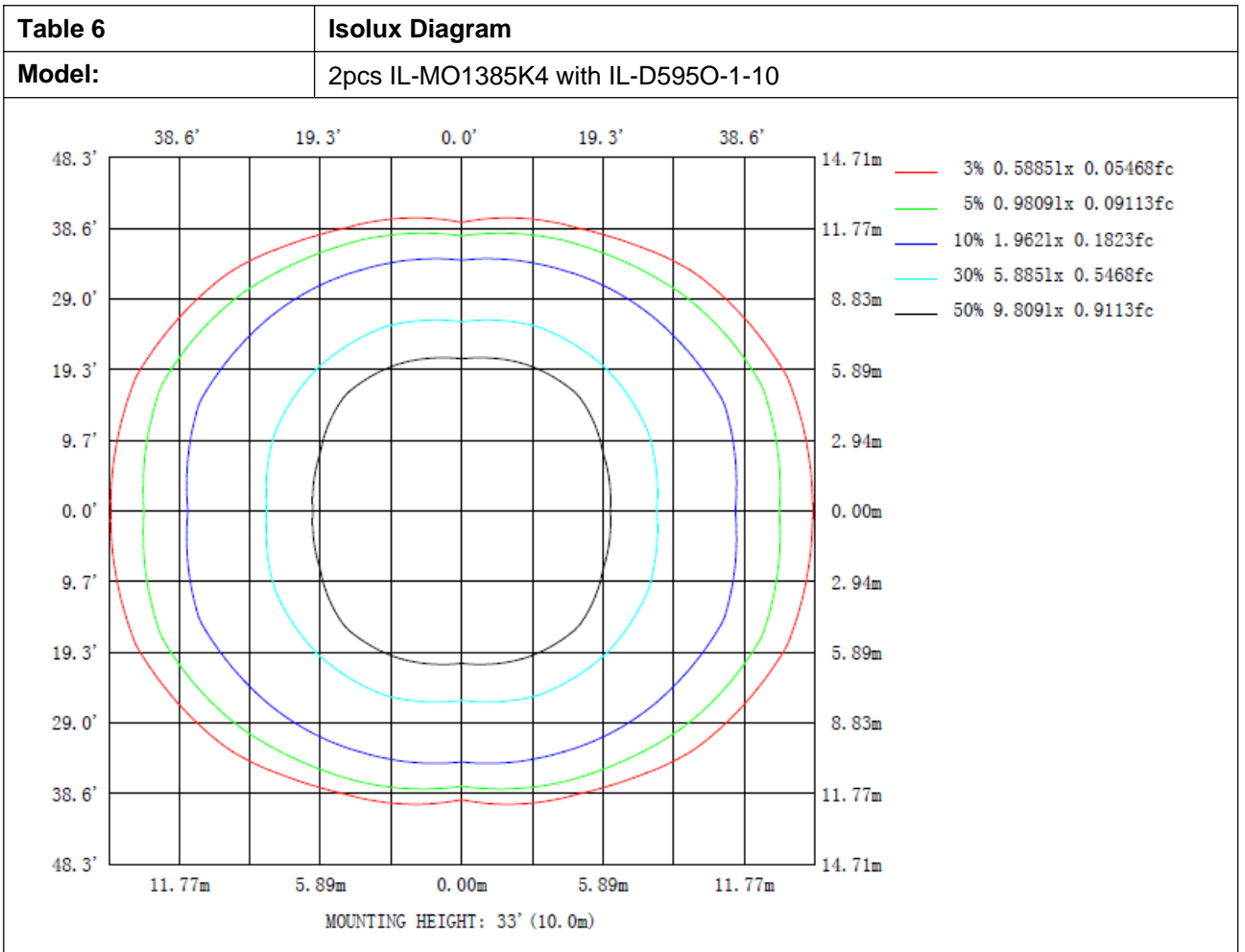




Table 7		Zonal Flux Diagram										
Model:		2pcs IL-MO1385K4 with IL-D595O-1-10										
y	C0	C45	C90	C135	C180	C225	C270	C315	y	φ zone	φ total	%lum.lamp
5	1944	1938	1928	1938	1944	1938	1928	1938	0- 5	46.31	46.31	1.31, 1.31
10	1971	1906	1874	1906	1971	1906	1874	1906	5- 10	137.7	184.0	5.19, 5.19
15	2018	1917	1904	1917	2018	1917	1904	1917	10- 15	228.9	412.8	11.6, 11.6
20	2032	1979	1894	1979	2032	1979	1894	1979	15- 20	322.5	735.4	20.7, 20.7
25	1911	2010	1851	2010	1911	2010	1851	2010	20- 25	410.5	1146	32.3, 32.3
30	1658	1956	1738	1956	1658	1956	1738	1956	25- 30	475.2	1621	45.7, 45.7
35	1441	1710	1496	1710	1441	1710	1496	1710	30- 35	501.6	2123	59.8, 59.8
40	1186	1338	1072	1338	1186	1338	1072	1338	35- 40	478.1	2601	73.3, 73.3
45	879.2	984.8	682.4	984.8	879.2	984.8	682.4	984.8	40- 45	400.9	3002	84.6, 84.6
50	606.5	575.4	244.4	575.4	606.5	575.4	244.4	575.4	45- 50	291.2	3293	92.8, 92.8
55	346.7	250.7	98.79	250.7	346.7	250.7	98.79	250.7	50- 55	160.6	3453	97.3, 97.3
60	187.9	44.13	16.85	44.13	187.9	44.13	16.85	44.13	55- 60	68.78	3522	99.3, 99.3
65	48.60	3.798	0.4562	3.798	48.60	3.798	0.4562	3.798	60- 65	19.05	3541	99.9, 99.9
70	1.262	0.4040	0.0896	0.4040	1.262	0.4040	0.0896	0.4040	65- 70	1.782	3543	99.9, 99.9
75	0.4759	0.0687	0.0783	0.0687	0.4759	0.0687	0.0783	0.0687	70- 75	0.1943	3543	99.9, 99.9
80	0.1425	0.0533	0.0618	0.0533	0.1425	0.0533	0.0618	0.0533	75- 80	0.0677	3543	99.9, 99.9
85	0.0609	0.0329	0.0407	0.0329	0.0609	0.0329	0.0407	0.0329	80- 85	0.0296	3543	99.9, 99.9
90	0.0289	0.0257	0.0207	0.0257	0.0289	0.0257	0.0207	0.0257	85- 90	0.0153	3543	99.9, 99.9
95	0.0366	0.0464	0.0314	0.0464	0.0366	0.0464	0.0314	0.0464	90- 95	0.0206	3543	99.9, 99.9
100	0.1208	0.0621	0.0410	0.0621	0.1208	0.0621	0.0410	0.0621	95-100	0.0349	3543	99.9, 99.9
105	0.1375	0.0813	0.0489	0.0813	0.1375	0.0813	0.0489	0.0813	100-105	0.0454	3543	99.9, 99.9
110	0.1694	0.1187	0.0822	0.1187	0.1694	0.1187	0.0822	0.1187	105-110	0.0569	3543	99.9, 99.9
115	0.1548	0.1851	0.1508	0.1851	0.1548	0.1851	0.1508	0.1851	110-115	0.0779	3544	99.9, 99.9
120	0.2800	0.2755	0.2564	0.2755	0.2800	0.2755	0.2564	0.2755	115-120	0.1106	3544	99.9, 99.9
125	0.3827	0.3908	0.3948	0.3908	0.3827	0.3908	0.3948	0.3908	120-125	0.1541	3544	99.9, 99.9
130	0.5969	0.5332	0.5580	0.5332	0.5969	0.5332	0.5580	0.5332	125-130	0.2061	3544	99.9, 99.9
135	0.8753	0.7921	0.8402	0.7921	0.8753	0.7921	0.8402	0.7921	130-135	0.2694	3544	99.9, 99.9
140	1.134	1.126	1.182	1.126	1.134	1.126	1.182	1.126	135-140	0.3627	3545	99.9, 99.9
145	1.380	1.482	1.525	1.482	1.380	1.482	1.525	1.482	140-145	0.4351	3545	99.9, 99.9
150	1.662	1.753	1.787	1.753	1.662	1.753	1.787	1.753	145-150	0.4778	3546	99.9, 99.9
155	1.894	2.051	2.011	2.051	1.894	2.051	2.011	2.051	150-155	0.4778	3546	100, 100
160	2.164	2.295	2.196	2.295	2.164	2.295	2.196	2.295	155-160	0.4503	3546	100, 100
165	2.306	2.371	2.267	2.371	2.306	2.371	2.267	2.371	160-165	0.3789	3547	100, 100
170	2.489	2.517	2.356	2.517	2.489	2.517	2.356	2.517	165-170	0.2858	3547	100, 100
175	2.772	2.792	2.457	2.792	2.772	2.792	2.457	2.792	170-175	0.1834	3547	100, 100
180	3.256	3.183	3.024	3.183	3.256	3.183	3.024	3.183	175-180	0.0692	3547	100, 100
DEG	LUMINOUS INTENSITY: cd											UNIT: lm

<b>Table 8</b>	<b>Luminous Distribution Intensity Data</b>
<b>Model:</b>	2pcs IL-MO1385K4 with IL-D595O-1-10

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	1934	1934	1934	1934	1934	1934	1934	1934	1934	1934	1934	1934	1934	1934	1934	1934			
5	1944	1942	1938	1936	1928	1936	1938	1942	1944	1942	1938	1936	1928	1936	1938	1942			
10	1971	1964	1906	1883	1874	1883	1906	1964	1971	1964	1906	1883	1874	1883	1906	1964			
15	2018	1980	1917	1905	1904	1905	1917	1980	2018	1980	1917	1905	1904	1905	1917	1980			
20	2032	1991	1979	1925	1894	1925	1979	1991	2032	1991	1979	1925	1894	1925	1979	1991			
25	1911	1932	2010	1912	1851	1912	2010	1932	1911	1932	2010	1912	1851	1912	2010	1932			
30	1658	1741	1956	1840	1738	1840	1956	1741	1658	1741	1956	1840	1738	1840	1956	1741			
35	1441	1528	1710	1649	1496	1649	1710	1528	1441	1528	1710	1649	1496	1649	1710	1528			
40	1186	1321	1338	1277	1072	1277	1338	1321	1186	1321	1338	1277	1072	1277	1338	1321			
45	879	1013	985	835	682	835	985	1013	879	1013	985	835	682	835	985	1013			
50	606	713	575	423	244	423	575	713	606	713	575	423	244	423	575	713			
55	347	372	251	102	98.8	102	251	372	347	372	251	102	98.8	102	251	372			
60	188	135	44.1	30.0	16.8	30.0	44.1	135	188	135	44.1	30.0	16.8	30.0	44.1	135			
65	48.6	23.2	3.80	0.75	0.46	0.75	3.80	23.2	48.6	23.2	3.80	0.75	0.46	0.75	3.80	23.2			
70	1.26	1.18	0.40	0.14	0.09	0.14	0.40	1.18	1.26	1.18	0.40	0.14	0.09	0.14	0.40	1.18			
75	0.48	0.39	0.07	0.07	0.08	0.07	0.07	0.39	0.48	0.39	0.07	0.07	0.08	0.07	0.07	0.39			
80	0.14	0.09	0.05	0.06	0.06	0.06	0.05	0.09	0.14	0.09	0.05	0.06	0.06	0.06	0.05	0.09			
85	0.06	0.04	0.03	0.04	0.04	0.04	0.03	0.04	0.06	0.04	0.03	0.04	0.04	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	0.02	0.02	0.02	0.02	0.03	0.03			
95	0.04	0.07	0.05	0.04	0.03	0.04	0.05	0.07	0.04	0.07	0.05	0.04	0.03	0.04	0.05	0.07			
100	0.12	0.12	0.06	0.05	0.04	0.05	0.06	0.12	0.12	0.12	0.06	0.05	0.04	0.05	0.06	0.12			
105	0.14	0.13	0.08	0.06	0.05	0.06	0.08	0.13	0.14	0.13	0.08	0.06	0.05	0.06	0.08	0.13			
110	0.17	0.17	0.12	0.10	0.08	0.10	0.12	0.17	0.17	0.17	0.12	0.10	0.08	0.10	0.12	0.17			
115	0.15	0.22	0.19	0.16	0.15	0.16	0.19	0.22	0.15	0.22	0.19	0.16	0.15	0.16	0.19	0.22			
120	0.28	0.30	0.28	0.27	0.26	0.27	0.28	0.30	0.28	0.30	0.28	0.27	0.26	0.27	0.28	0.30			
125	0.38	0.39	0.39	0.40	0.39	0.40	0.39	0.39	0.38	0.39	0.39	0.40	0.39	0.40	0.39	0.39			
130	0.60	0.56	0.53	0.56	0.56	0.56	0.53	0.56	0.60	0.56	0.53	0.56	0.56	0.56	0.53	0.56			
135	0.88	0.79	0.79	0.83	0.84	0.83	0.79	0.79	0.88	0.79	0.79	0.83	0.84	0.83	0.79	0.79			
140	1.13	1.10	1.13	1.17	1.18	1.17	1.13	1.10	1.13	1.10	1.13	1.17	1.18	1.17	1.13	1.10			
145	1.38	1.44	1.48	1.54	1.52	1.54	1.48	1.44	1.38	1.44	1.48	1.54	1.52	1.54	1.48	1.44			
150	1.66	1.74	1.75	1.80	1.79	1.80	1.75	1.74	1.66	1.74	1.75	1.80	1.79	1.80	1.75	1.74			
155	1.89	2.03	2.05	2.08	2.01	2.08	2.05	2.03	1.89	2.03	2.05	2.08	2.01	2.08	2.05	2.03			
160	2.16	2.27	2.30	2.27	2.20	2.27	2.30	2.27	2.16	2.27	2.30	2.27	2.20	2.27	2.30	2.27			
165	2.31	2.43	2.37	2.30	2.27	2.30	2.37	2.43	2.31	2.43	2.37	2.30	2.27	2.30	2.37	2.43			
170	2.49	2.60	2.52	2.38	2.36	2.38	2.52	2.60	2.49	2.60	2.52	2.38	2.36	2.38	2.52	2.60			
175	2.77	2.88	2.79	2.65	2.46	2.65	2.79	2.88	2.77	2.88	2.79	2.65	2.46	2.65	2.79	2.88			
180	3.26	3.28	3.18	3.08	3.02	3.08	3.18	3.28	3.26	3.28	3.18	3.08	3.02	3.08	3.18	3.28			

**Attachment 1: Equipment List**

<b>Equipment</b>	<b>Model</b>	<b>calibration date</b>	<b>Calibration due date</b>
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:** 2pcs IL-MO1385K4 with IL-D595O-1-10



Photo 1

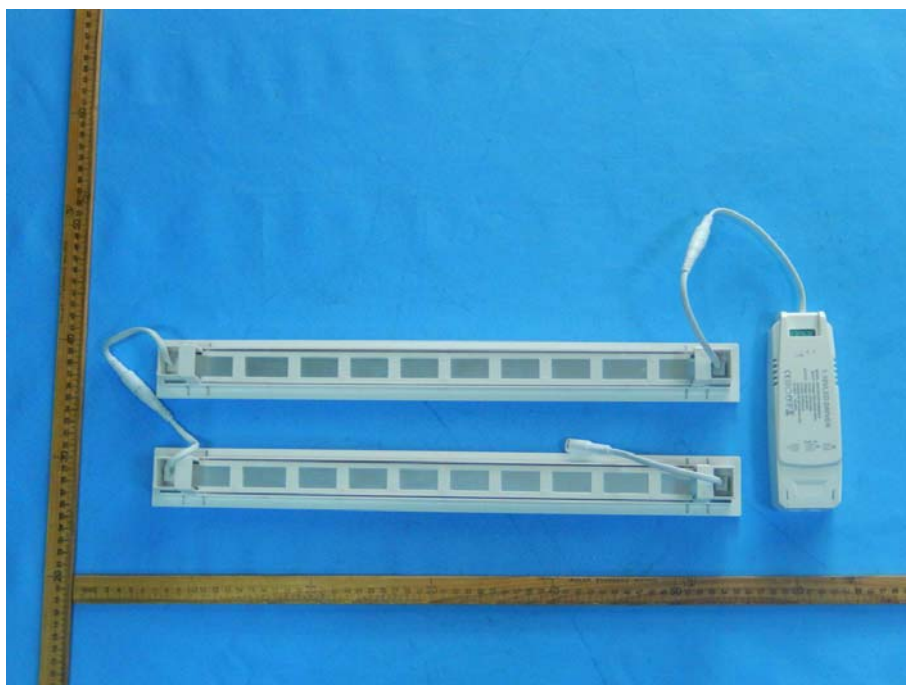


Photo 2



Photo 3



Photo 4

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