



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Reference No..... : WTS18F05113594N
 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-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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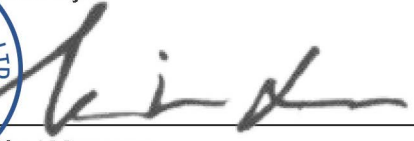
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Compiled by:


 Finn Yu / Project Engineer



Approved by:


 Qin 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>Possible test case verdicts:</p> <ul style="list-style-type: none"> - 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) <p>Possible suffixes to the verdicts:</p> <ul style="list-style-type: none"> - suffix for detailed information for the client.....: - C(omment) - suffix for important information for factory inspection.....: - M(anufacturing) 										
<p>General remarks:</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"> 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: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 10%;">Item</th> <th style="width: 20%;">Model</th> <th style="width: 30%;">Ratings</th> <th style="width: 15%;">CCT</th> <th style="width: 25%;">Driver</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>3pcs IL-MO1385K3 with IL-D595O-1-10</td> <td style="text-align: center;">200-240VAC, 50Hz, 30W</td> <td style="text-align: center;">3000K</td> <td style="text-align: center;">30W DRIVER DIMMABLE</td> </tr> </tbody> </table>	Item	Model	Ratings	CCT	Driver	1	3pcs IL-MO1385K3 with IL-D595O-1-10	200-240VAC, 50Hz, 30W	3000K	30W DRIVER DIMMABLE
Item	Model	Ratings	CCT	Driver						
1	3pcs 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 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 ± 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.

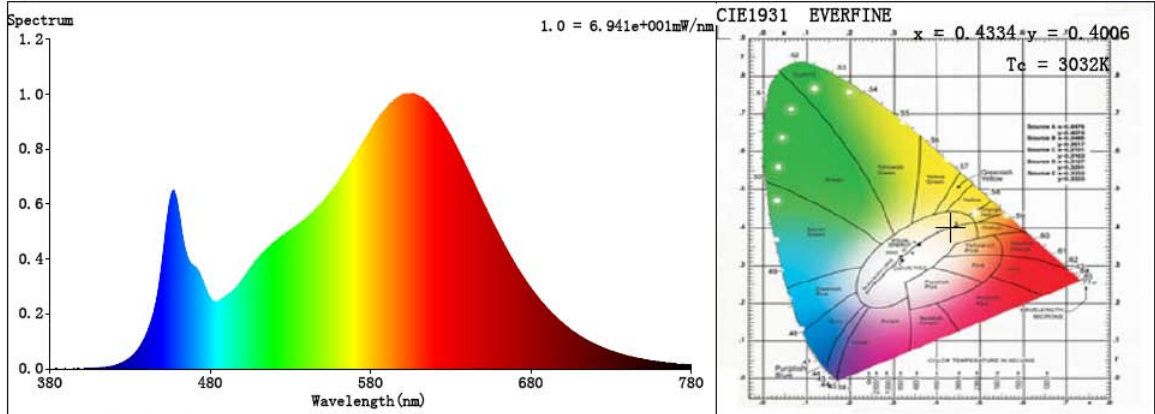
The sample was operated at Rated Volts(see Table 1). It was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 22.5° horizontal intervals.

IES LM-79-08			
Clause	Requirement – Test	Measuring result – Remark	Verdict
2.0	Ambient Conditions		P
2.1	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:	3pcs 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)	---		118.15
Total Luminous Flux (Lumens)	---		3429.0
Peak Intensity (cd)	---		2003
Total Radiant Flux (Watts)	10.581		---
Correlated Color Temperature (CCT)	3032		---
Color Rendering Index (CRI)	84.0		---
Chromaticity (Chroma x / Chroma y)	0.4334 / 0.4006		---
Chromaticity (Chroma u' / Chroma v')	0.2498 / 0.5195		---
Duv Value	-8.88e-04		---
Stabilization Time (Light and Power) (Minutes)	30		30
Total Run Time (Minutes)	60		90
Electrical Input Results			
Input Power (Watts)	---		29.02
Input Voltage (Volts AC)	---		240.3
Input Current (Amps)	---		0.1298
Input Frequency (Hertz)	---		50.0
Power Factor	---		0.9306
Additional Information			
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"> - Absorbion 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-MO1385K3 with IL-D595O-1-10

Spectrum



Spectral Distribution

CIE1931 Chromaticity Diagram

Colorimetric Quantities

Chromaticity Coordinate: $x = 0.4334, y = 0.4006$ / $u' = 0.2498, v' = 0.5195$ ($duv = -8.88e-04$)

$T_c = 3032K$ Prep WL: $\lambda_d = 583.0nm$ Purity=50.3%

Peak WL: $\lambda_p = 606nm$ Half Width: $\Delta\lambda_p = 129.3nm$ Ratio: R=24.8% G=72.4% B=2.8%

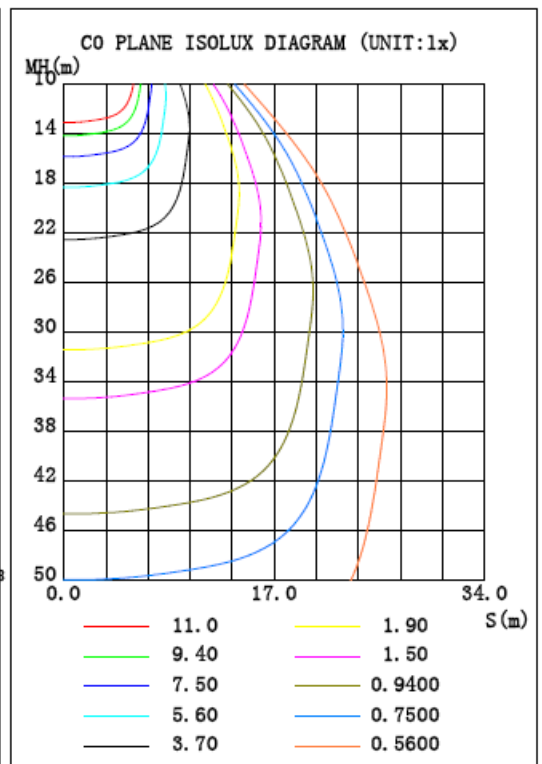
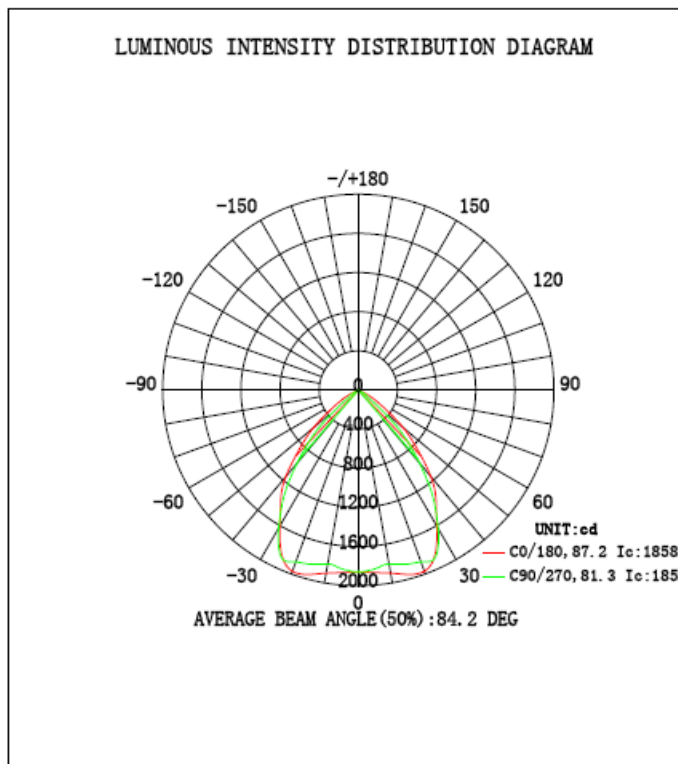
Render Index: $R_a = 84.0$

R1 =84 R2 =94 R3 =94 R4 =81 R5 =84 R6 =93 R7 =82

R8 =61 R9 =15 R10=86 R11=80 R12=72 R13=87 R14=98 R15=76

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

DATA OF LAMP		PHOTOMETRIC DATA Eff: 118.15 lm/W			
MODEL	3000K-3	I _{max} (cd)	2003	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)	3429.0	η UP, DN(C0-180)	0.1, 49.9
NOMINAL FLUX(lm)	3429	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



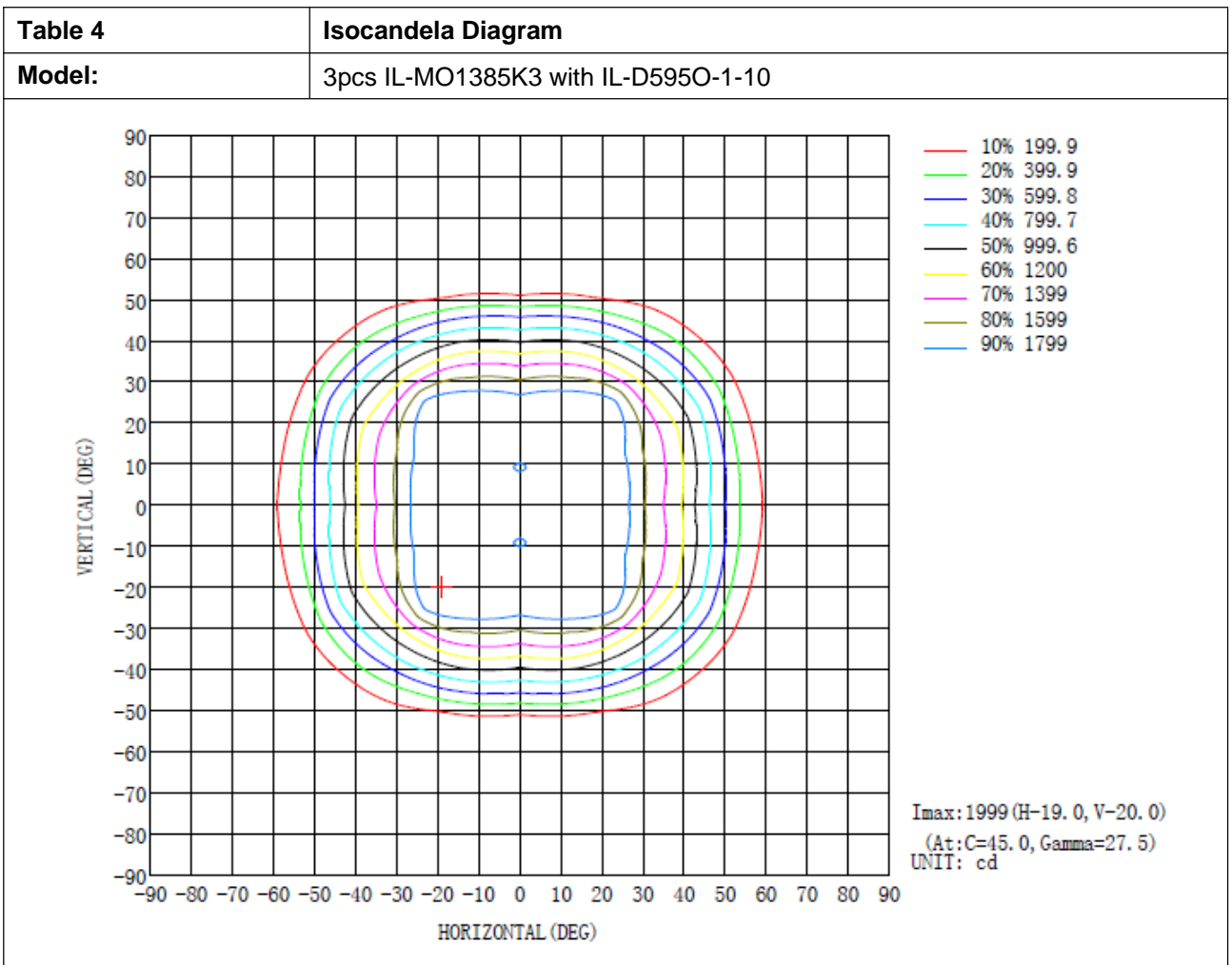


Table 5		AAI Figure	
Model:		3pcs IL-MO1385K3 with IL-D595O-1-10	
Flux out:2565 lm			
1m	1119, 1874lx		169.24cm
2m	279.8, 468.4lx		338.48cm
3m	124.4, 208.2lx		507.71cm
4m	69.95, 117.1lx		676.95cm
5m	44.77, 74.95lx		846.19cm
6m	31.09, 52.05lx		1015.43cm
7m	22.84, 38.24lx		1184.66cm
8m	17.49, 29.28lx		1353.90cm
9m	13.82, 23.13lx		1523.14cm
10m	11.19, 18.74lx		1692.38cm
Height	Eavg, Emax	Angle:80.48deg	Diameter
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.			

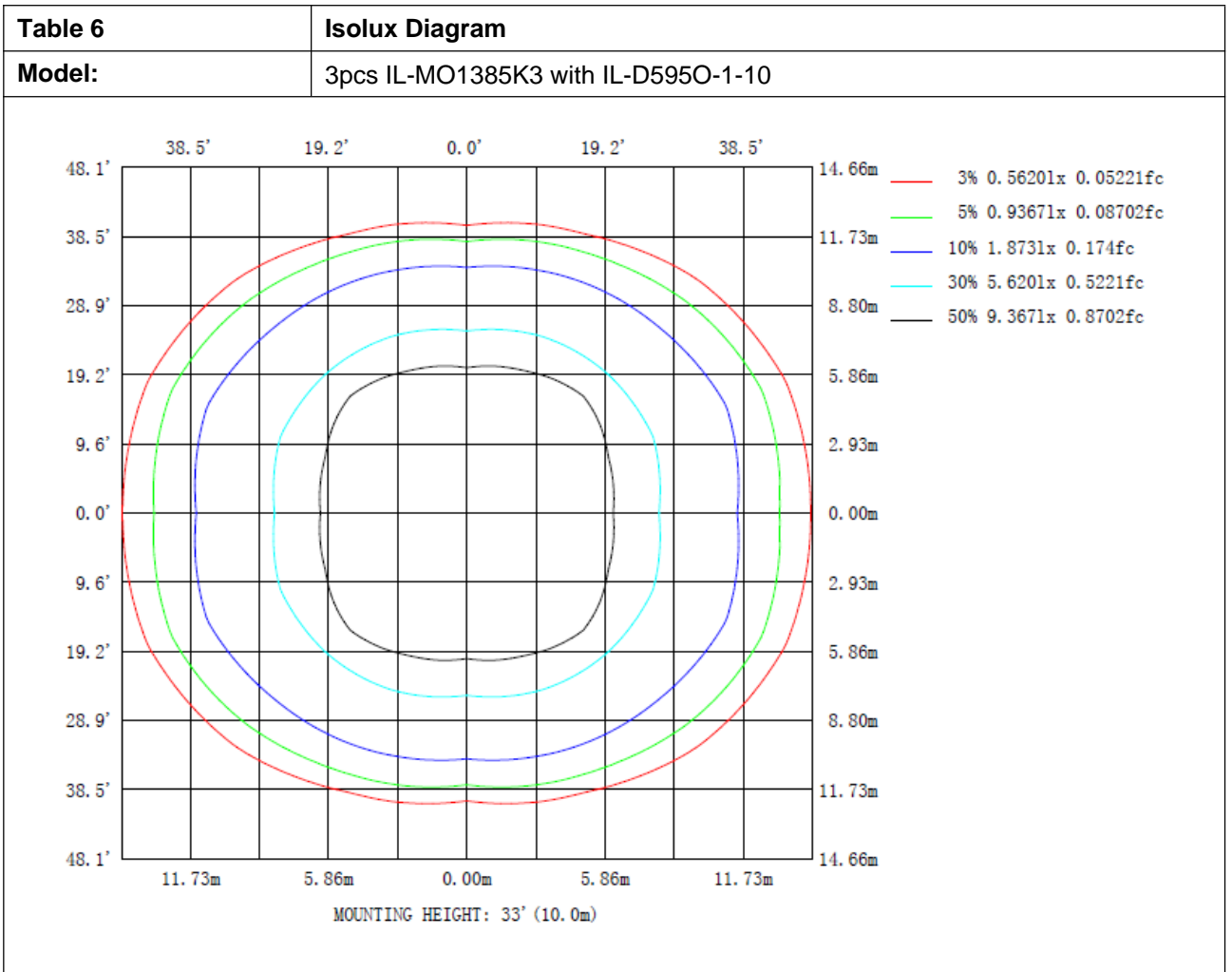




Table 7		Zonal Flux Diagram										
Model:		3pcs IL-MO1385K3 with IL-D595O-1-10										
y	C0	C45	C90	C135	C180	C225	C270	C315	y	Φ zone	Φ total	%lum.lamp
5	1872	1851	1837	1851	1872	1851	1837	1851	0- 5	44.40	44.40	1.29, 1.29
10	1901	1843	1807	1843	1901	1843	1807	1843	5- 10	132.3	176.7	5.15, 5.15
15	1951	1866	1842	1866	1951	1866	1842	1866	10- 15	221.2	397.9	11.6, 11.6
20	1971	1939	1869	1939	1971	1939	1869	1939	15- 20	314.2	712.1	20.8, 20.8
25	1855	1993	1875	1993	1855	1993	1875	1993	20- 25	404.7	1117	32.6, 32.6
30	1607	1984	1632	1984	1607	1984	1632	1984	25- 30	470.4	1587	46.3, 46.3
35	1385	1712	1327	1712	1385	1712	1327	1712	30- 35	484.9	2072	60.4, 60.4
40	1153	1256	972.5	1256	1153	1256	972.5	1256	35- 40	451.2	2523	73.6, 73.6
45	853.1	907.3	648.0	907.3	853.1	907.3	648.0	907.3	40- 45	378.5	2902	84.6, 84.6
50	598.1	545.0	261.8	545.0	598.1	545.0	261.8	545.0	45- 50	279.0	3181	92.8, 92.8
55	330.7	246.8	107.4	246.8	330.7	246.8	107.4	246.8	50- 55	157.1	3338	97.3, 97.3
60	176.6	42.71	23.00	42.71	176.6	42.71	23.00	42.71	55- 60	67.53	3405	99.3, 99.3
65	40.28	3.685	0.5188	3.685	40.28	3.685	0.5188	3.685	60- 65	18.02	3423	99.8, 99.8
70	1.053	0.4451	0.1075	0.4451	1.053	0.4451	0.1075	0.4451	65- 70	1.386	3425	99.9, 99.9
75	0.4749	0.0765	0.0912	0.0765	0.4749	0.0765	0.0912	0.0765	70- 75	0.1775	3425	99.9, 99.9
80	0.1919	0.0583	0.0703	0.0583	0.1919	0.0583	0.0703	0.0583	75- 80	0.0742	3425	99.9, 99.9
85	0.0806	0.0330	0.0436	0.0330	0.0806	0.0330	0.0436	0.0330	80- 85	0.0335	3425	99.9, 99.9
90	0.0283	0.0295	0.0224	0.0295	0.0283	0.0295	0.0224	0.0295	85- 90	0.0154	3425	99.9, 99.9
95	0.0745	0.0593	0.0376	0.0593	0.0745	0.0593	0.0376	0.0593	90- 95	0.0268	3425	99.9, 99.9
100	0.1637	0.0762	0.0476	0.0762	0.1637	0.0762	0.0476	0.0762	95-100	0.0472	3425	99.9, 99.9
105	0.1742	0.0999	0.0612	0.0999	0.1742	0.0999	0.0612	0.0999	100-105	0.0580	3425	99.9, 99.9
110	0.1924	0.1391	0.0973	0.1391	0.1924	0.1391	0.0973	0.1391	105-110	0.0691	3425	99.9, 99.9
115	0.1535	0.2034	0.1672	0.2034	0.1535	0.2034	0.1672	0.2034	110-115	0.0896	3425	99.9, 99.9
120	0.3181	0.2909	0.2649	0.2909	0.3181	0.2909	0.2649	0.2909	115-120	0.1206	3425	99.9, 99.9
125	0.3609	0.3979	0.3906	0.3979	0.3609	0.3979	0.3906	0.3979	120-125	0.1577	3426	99.9, 99.9
130	0.5685	0.5288	0.5394	0.5288	0.5685	0.5288	0.5394	0.5288	125-130	0.2044	3426	99.9, 99.9
135	0.8224	0.7595	0.8029	0.7595	0.8224	0.7595	0.8029	0.7595	130-135	0.2635	3426	99.9, 99.9
140	1.083	1.084	1.125	1.084	1.083	1.084	1.125	1.084	135-140	0.3501	3426	99.9, 99.9
145	1.289	1.398	1.440	1.398	1.289	1.398	1.440	1.398	140-145	0.4121	3427	99.9, 99.9
150	1.550	1.665	1.696	1.665	1.550	1.665	1.696	1.665	145-150	0.4525	3427	99.9, 99.9
155	1.789	1.931	1.902	1.931	1.789	1.931	1.902	1.931	150-155	0.4509	3428	100, 100
160	2.073	2.165	2.105	2.165	2.073	2.165	2.105	2.165	155-160	0.4260	3428	100, 100
165	2.208	2.238	2.131	2.238	2.208	2.238	2.131	2.238	160-165	0.3585	3428	100, 100
170	2.388	2.376	2.217	2.376	2.388	2.376	2.217	2.376	165-170	0.2706	3429	100, 100
175	2.661	2.658	2.335	2.658	2.661	2.658	2.335	2.658	170-175	0.1742	3429	100, 100
180	3.149	3.031	2.831	3.031	3.149	3.031	2.831	3.031	175-180	0.0660	3429	100, 100
DEC	LUMINOUS INTENSITY:cd									UNIT:lm		

Table 8	Luminous Distribution Intensity Data
Model:	3pcs IL-MO1385K3 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	1858	1858	1858	1858	1858	1858	1858	1858	1858	1858	1858	1858	1858	1858	1858	1858			
5	1872	1867	1851	1846	1837	1846	1851	1867	1872	1867	1851	1846	1837	1846	1851	1867			
10	1901	1882	1843	1814	1807	1814	1843	1882	1901	1882	1843	1814	1807	1814	1843	1882			
15	1951	1917	1866	1854	1842	1854	1866	1917	1951	1917	1866	1854	1842	1854	1866	1917			
20	1971	1938	1939	1892	1869	1892	1939	1938	1971	1938	1939	1892	1869	1892	1939	1938			
25	1855	1885	1993	1942	1875	1942	1993	1885	1855	1885	1993	1942	1875	1942	1993	1885			
30	1607	1710	1984	1791	1632	1791	1984	1710	1607	1710	1984	1791	1632	1791	1984	1710			
35	1385	1493	1712	1482	1327	1482	1712	1493	1385	1493	1712	1482	1327	1482	1712	1493			
40	1153	1302	1256	1145	973	1145	1256	1302	1153	1302	1256	1145	973	1145	1256	1302			
45	853	1012	907	777	648	777	907	1012	853	1012	907	777	648	777	907	1012			
50	598	703	545	396	262	396	545	703	598	703	545	396	262	396	545	703			
55	331	352	247	104	107	104	247	331	352	247	104	107	104	247	331	352			
60	177	126	42.7	34.0	23.0	34.0	42.7	126	177	126	42.7	34.0	23.0	34.0	42.7	126			
65	40.3	19.3	3.69	0.96	0.52	0.96	3.69	19.3	40.3	19.3	3.69	0.96	0.52	0.96	3.69	19.3			
70	1.05	0.92	0.45	0.14	0.11	0.14	0.45	0.92	1.05	0.92	0.45	0.14	0.11	0.14	0.45	0.92			
75	0.47	0.38	0.08	0.08	0.09	0.08	0.08	0.38	0.47	0.38	0.08	0.08	0.09	0.08	0.08	0.38			
80	0.19	0.10	0.06	0.06	0.07	0.06	0.06	0.10	0.19	0.10	0.06	0.06	0.07	0.06	0.06	0.10			
85	0.08	0.04	0.03	0.04	0.04	0.04	0.03	0.04	0.08	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	0.03	0.02	0.02	0.02	0.03	0.03			
95	0.07	0.12	0.06	0.05	0.04	0.05	0.06	0.12	0.07	0.12	0.06	0.05	0.04	0.05	0.06	0.12			
100	0.16	0.15	0.08	0.06	0.05	0.06	0.08	0.15	0.16	0.15	0.08	0.06	0.05	0.06	0.08	0.15			
105	0.17	0.17	0.10	0.08	0.06	0.08	0.10	0.17	0.17	0.17	0.10	0.08	0.06	0.08	0.10	0.17			
110	0.19	0.20	0.14	0.12	0.10	0.12	0.14	0.20	0.19	0.20	0.14	0.12	0.10	0.12	0.14	0.20			
115	0.15	0.26	0.20	0.18	0.17	0.18	0.20	0.26	0.15	0.26	0.20	0.18	0.17	0.18	0.20	0.26			
120	0.32	0.30	0.29	0.28	0.26	0.28	0.29	0.30	0.32	0.30	0.29	0.28	0.26	0.28	0.29	0.30			
125	0.36	0.43	0.40	0.41	0.39	0.41	0.40	0.43	0.36	0.43	0.40	0.41	0.39	0.41	0.40	0.43			
130	0.57	0.53	0.53	0.55	0.54	0.55	0.53	0.53	0.57	0.53	0.53	0.55	0.54	0.55	0.53	0.53			
135	0.82	0.82	0.76	0.80	0.80	0.80	0.76	0.82	0.82	0.82	0.76	0.80	0.80	0.80	0.76	0.82			
140	1.08	1.04	1.08	1.12	1.12	1.12	1.08	1.04	1.08	1.04	1.08	1.12	1.12	1.12	1.08	1.04			
145	1.29	1.36	1.40	1.46	1.44	1.46	1.40	1.36	1.29	1.36	1.40	1.46	1.44	1.46	1.40	1.36			
150	1.55	1.65	1.67	1.71	1.70	1.71	1.67	1.65	1.55	1.65	1.67	1.71	1.70	1.71	1.67	1.65			
155	1.79	1.91	1.93	1.96	1.90	1.96	1.93	1.91	1.79	1.91	1.93	1.96	1.90	1.96	1.93	1.91			
160	2.07	2.15	2.17	2.13	2.11	2.13	2.17	2.15	2.07	2.15	2.17	2.13	2.11	2.13	2.17	2.15			
165	2.21	2.31	2.24	2.17	2.13	2.17	2.24	2.31	2.21	2.31	2.24	2.17	2.13	2.17	2.24	2.31			
170	2.39	2.47	2.38	2.25	2.22	2.25	2.38	2.47	2.39	2.47	2.38	2.25	2.22	2.25	2.38	2.47			
175	2.66	2.75	2.66	2.53	2.34	2.53	2.66	2.75	2.66	2.75	2.66	2.53	2.34	2.53	2.66	2.75			
180	3.15	3.15	3.03	2.91	2.83	2.91	3.03	3.15	3.15	3.15	3.03	2.91	2.83	2.91	3.03	3.15			

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-MO1385K3 with IL-D595O-1-10



Photo 1



Photo 2

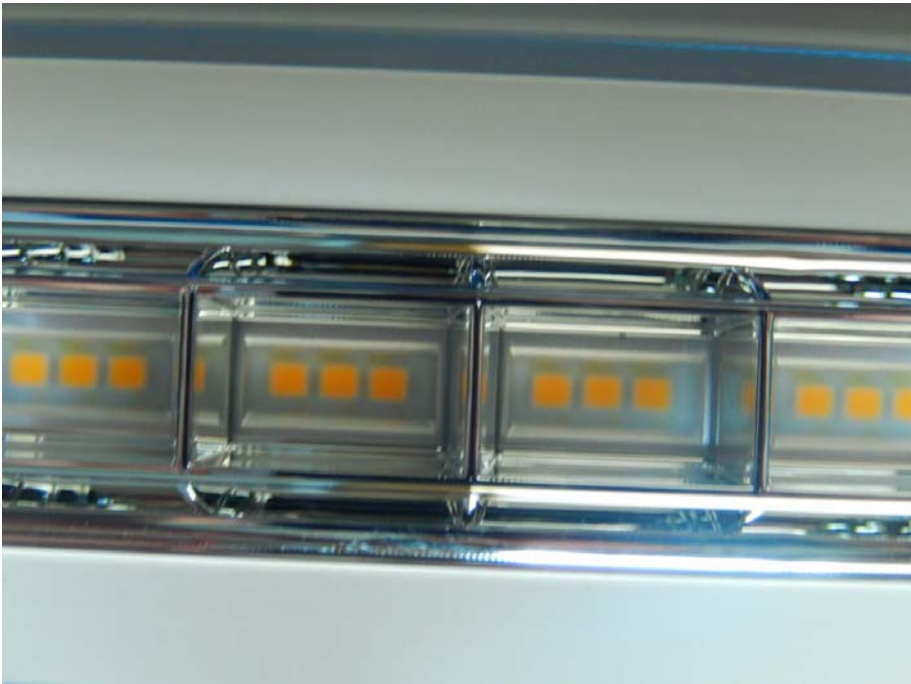


Photo 3



Photo 4

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