







# TEST REPORT

## Of IES LM-79-08

<b>Kunde:</b> <i>Client:</i>	Shenzhen Penel Optoelectronics Technology Co.,Ltd
<b>Adresse:</b> <i>Address:</i>	The 1st Building ,Xi'en Industrial District, No.227, Xiangshan Avenue, Yanluo Street, Bao'an District, Shenzhen, China
<b>Hersteller:</b> <i>Manufacturer:</i>	Shenzhen Penel Optoelectronics Technology Co.,Ltd
<b>Adresse:</b> <i>Address:</i>	The 1st Building ,Xi'en Industrial District, No.227, Xiangshan Avenue, Yanluo Street, Bao'an District, Shenzhen, China
<b>Name der Marke:</b> <i>Brand Name:</i>	
<b>Beschreibung des Produkts:</b> <i>Product Description:</i>	LED FLOOD LIGHT
<b>Modelle:</b> <i>Models:</i>	FL-NSO5-300
<b>Bewertung:</b> <i>Rating:</i>	AC100-240V, 50/60Hz, 300W, 4000K
<b>Verfahren:</b> <i>Method:</i>	IES LM-79-08: Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products
<b>Prüfergebnis*:</b> <i>Test result*:</i>	N/A

<b>Datum der Prüfung:</b> <i>Date of Test:</i>	<b>Datum der Emission:</b> <i>Date of Issue:</i>	<b>Klassifizierung:</b> <i>Classification:</i>	<b>Gegenstand der Prüfung:</b> <i>Test item:</i>
2021-01-20-2021-01-25	2021-01-26	Commission Test	IES LM-79-08

**Prüflabor (Testlabor) / Testing Laboratory:**  
Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

<b>Test von/Test by:</b>  Sharon Su/ Project Engineer	<b>Check von/Check by:</b>  Ian Luo/ Director	<b>Genehmigt von/Approved by:</b>  Jesse Liu/ Manager
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**Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.**  
*Remark: The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory. This report contains the result of examination of the product sample submitted by the appliance. A general statement concerning the quality of the products from the series manufacturer cannot be derived therefore.*





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## 1. Test Method

Test Item.....:	Integrating Sphere Test
Ambient Condition .....	25.1°C
Stabilization time .....(h):	0.5h
Orientation(burning position) of SSL product during test .....	down
Test Method .....	<p>The sample was tested according to the IES LM-79-2008.</p> <p>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 sample was operated at rated voltage and 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.</p>
Test Item.....:	Goniophotometer Test
Ambient Condition.....:	25.1°C
Total operated time of the product for measurements including stabilization..... (h):	1.0h
Orientation(burning position) of SSL product during test .....	down
Test Method.....:	<p>The sample was tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using a type C goniophotometer and software. The sample reference plane was located at the center of the sample goniometer at a test distance of 26m from the detectors. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at 1 ° vertical intervals and 22.5 ° horizontal intervals.</p>





## 2. Product Information

Product description.....:	LED FLOOD LIGHT
Model Number.....:	FL-NSO5-300
Rated Inputs.....:	AC100-240V, 50/60Hz
Rated Power.....:	300W
Declared CCT.....:	4000K
LED Manufacturer.....:	CREE
LED Model.....:	3030LEDs
Forward current of the LED chip.....:	400mA
Date of Receipt Samples.....:	January 19, 2021
Quantity of Receipt Samples.....:	1 unit

## 3. Test equipment list

Manufacturer	Description	Equipment ID	Model	Calibration Date	Calibration Due Date
EVERFINE	Full-field Speed Goniophotometer	SLCS-S-112	GO-R5000	2020/07/02	2021/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2020/06/24	2021/06/23
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2020/06/24	2021/06/23
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2020/07/02	2021/07/01
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2020/07/02	2021/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2020/06/24	2021/06/23
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2020/06/24	2021/06/23
SENSING	Standard Lamp	SLCS-S-118	S11010017	2020/07/02	2021/07/01





## 4. Integrating Sphere Test Results

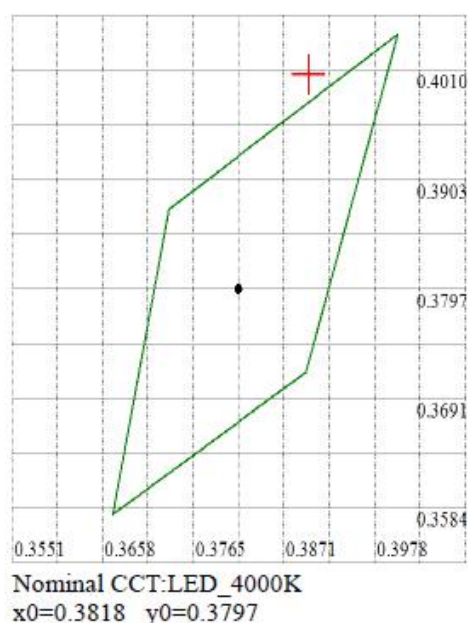
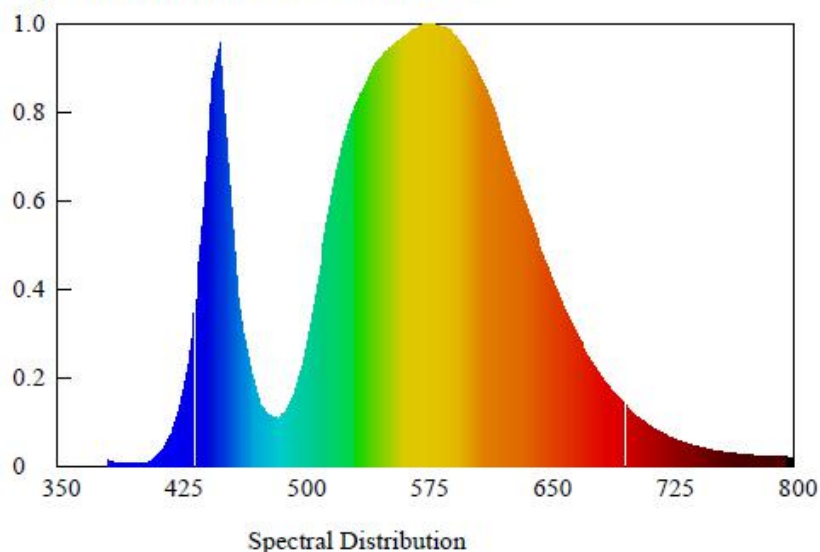
### 4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	229.93	50.01	1.3273	0.9820	299.81

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	3923	70.1	+0.00802	42295.36	141.1

### 4.2 Spectrum

#### Spectroradiometric Parameters



Chromaticity Coordinates: x=0.3901 y=0.4005 u'=0.2221 v'=0.5131

Correlated Color Temperature: 3923 K

Colour Fidelity Index: Rf=70

Luminous Flux: 42295.36 lm

Chromaticity Difference: +0.00802Duv

Color Ratio: Kr=36.1% Kg=57.7% Kb=6.2%

Bandwidth: 136.7nm

Photosynthetically Active Radiation(PAR): 104.38W

Rendering Index: Ra=70.1

Dominant Wavelength: 574.0 nm(E)

Gamut Index: Rg=93

Purity: 0.3715

Peak Wavelength: 580.0 nm

Radiant Flux: 107.449 W

Photosynthetic Photon Flux(PPF):493.94μmol/s

R1=67 R2=75 R3=82 R4=70 R5=65 R6=64 R7=82 R8=54

R9=-30 R10=41 R11=64 R12=33 R13=69 R14=89 R15=61 Re=59





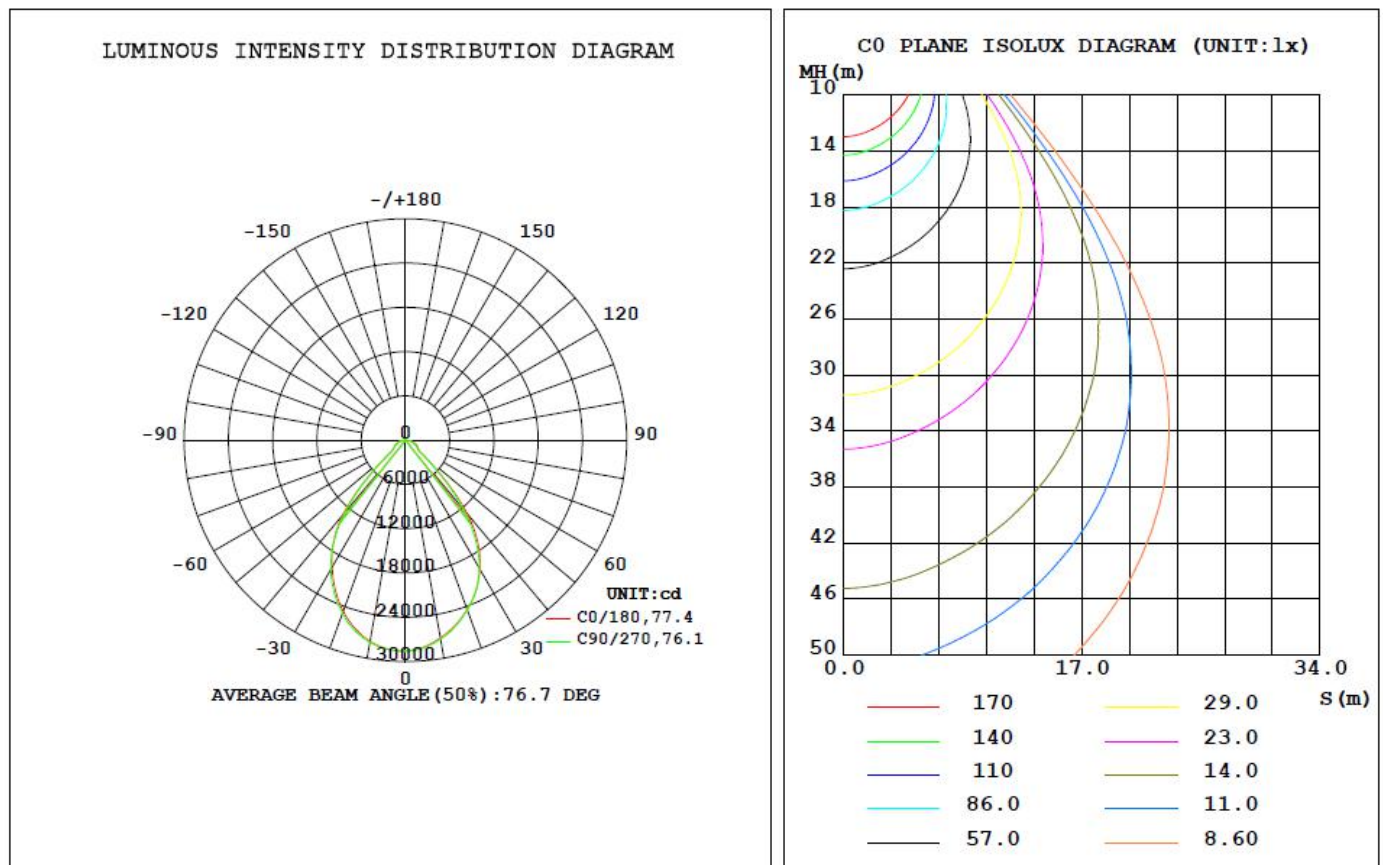
## 5. Goniophotometer Test results

### 5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	230.1	50.01	1.325	0.9814	299.3

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	Imax (cd)	Spacing Criteria ( 0~180° )	Spacing Criteria ( 90~270° )
Output	42213.2	141.04	28606	1.07	1.09

### 5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx)







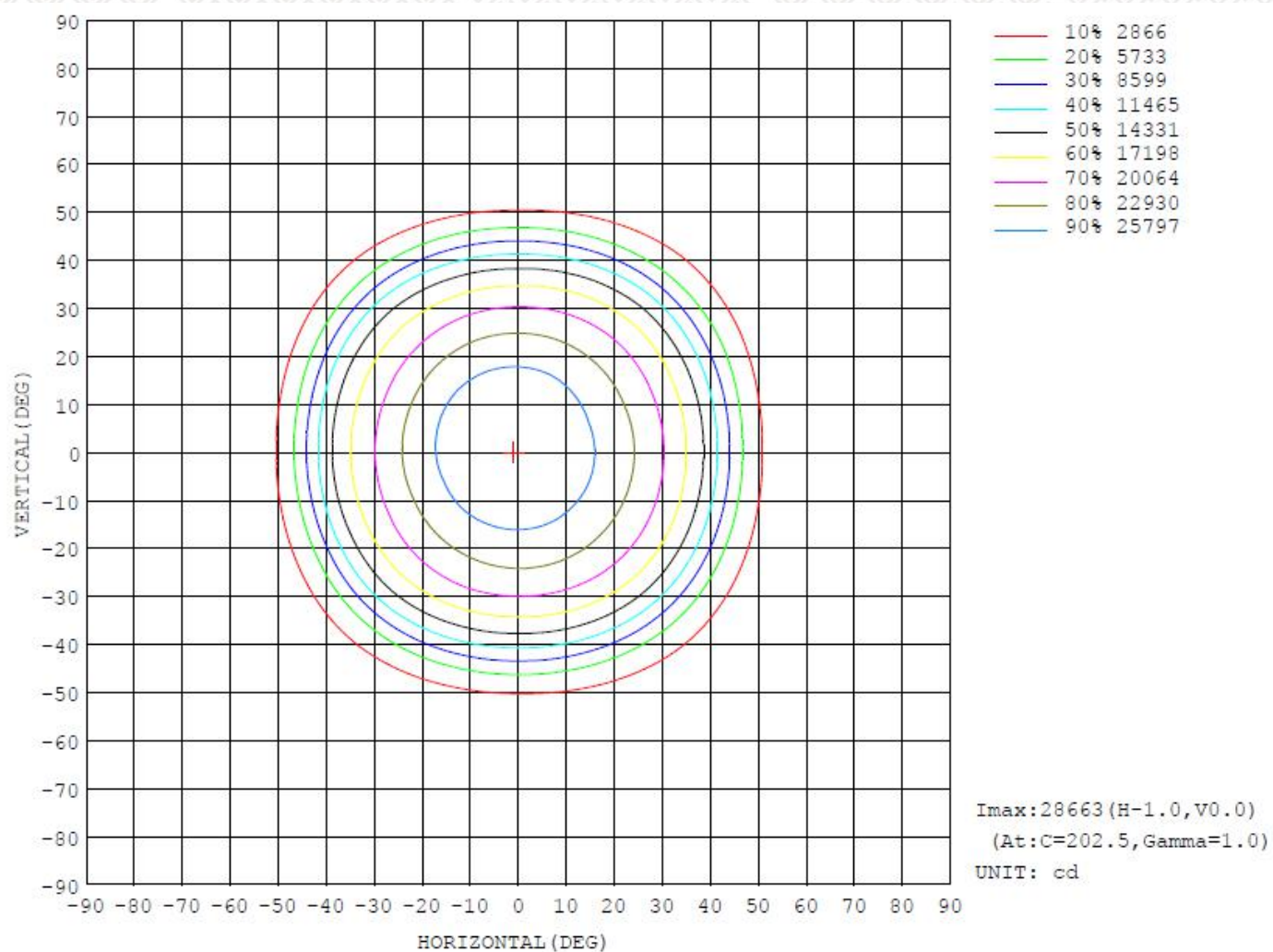
### 5.3 Zonal Flux Diagram

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	2721	2729	2740	2754	2769	2787	2781	2753	0- 10	2679	2679	6.44, 6.44
20	2443	2447	2450	2458	2469	2501	2498	2471	10- 20	7400	10079	24.2, 24.2
30	2020	2020	2004	2001	1994	2007	2026	2035	20- 30	10367	20446	49.1, 49.1
40	1301	1269	1215	1267	1320	1330	1275	1326	30- 40	10507	30953	74.4, 74.4
50	324.3	321.8	296.7	300.3	306.7	316.9	307.4	336.8	40- 50	5790	36743	88.3, 88.3
60	193.0	196.6	167.0	181.3	173.1	175.0	163.0	187.7	50- 60	1948	38691	93, 93
70	138.2	142.2	111.8	125.4	116.2	120.6	108.5	134.4	60- 70	1517	40208	96.6, 96.6
80	62.99	64.78	65.87	53.08	53.27	49.57	59.53	61.12	70- 80	979.9	41188	99, 99
90	0.7838	2.074	1.585	0.4864	0.3664	0.3504	0.3511	0.7298	80- 90	295.6	41484	99.7, 99.7
100	1.403	0.5755	0.2541	0.4813	1.071	0.4701	0.2914	0.5865	90-100	4.465	41488	99.7, 99.7
110	0.5317	0.3140	0.2391	0.2858	0.4718	0.4265	0.3962	0.3915	100-110	5.090	41493	99.7, 99.7
120	0.3518	0.4100	0.4996	0.3976	0.5774	0.7565	0.8594	0.6101	110-120	4.215	41497	99.7, 99.7
130	1.391	1.438	1.990	1.382	1.186	1.527	1.513	1.190	120-130	8.303	41506	99.8, 99.8
140	3.174	3.164	3.702	3.062	2.489	2.609	3.528	2.384	130-140	16.82	41522	99.8, 99.8
150	5.322	5.522	6.031	5.555	4.106	4.559	5.679	4.259	140-150	25.81	41548	99.9, 99.9
160	6.342	6.382	6.845	6.482	5.979	6.422	7.458	6.168	150-160	27.16	41575	99.9, 99.9
170	7.533	8.146	8.819	7.663	6.726	7.310	8.623	7.869	160-170	19.96	41595	100, 100
180	8.426	8.812	9.236	8.069	8.313	8.752	8.809	8.543	170-180	7.839	41603	100, 100
DEG	LUMINOUS INTENSITY: $\times 10\text{cd}$									UNIT: lm		





## 5.4 Isocandela Diagram







## 5.5 Luminous Distribution Intensity Data

Table--1

UNIT:  $\times 10\text{cd}$

C (DEG) y (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	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858			
5	2816	2818	2818	2823	2825	2828	2835	2838	2841	2845	2848	2847	2842	2839	2832	2823			
10	2721	2723	2729	2733	2740	2746	2754	2765	2769	2780	2787	2789	2781	2775	2753	2732			
15	2600	2602	2604	2608	2613	2619	2629	2636	2643	2660	2675	2678	2669	2658	2631	2611			
20	2443	2445	2447	2448	2450	2454	2458	2462	2469	2487	2501	2504	2498	2490	2471	2452			
25	2255	2249	2252	2256	2259	2252	2244	2242	2250	2257	2272	2285	2287	2283	2270	2260			
30	2020	2018	2020	2012	2004	2007	2001	1991	1994	1995	2007	2020	2026	2034	2035	2025			
35	1714	1714	1712	1682	1662	1676	1699	1700	1711	1714	1720	1704	1699	1726	1743	1729			
40	1301	1286	1269	1237	1215	1232	1267	1282	1320	1330	1330	1292	1275	1306	1326	1316			
45	751	734	719	705	699	698	705	711	755	768	771	765	757	771	773	766			
50	324	324	322	310	297	296	300	299	307	314	317	313	307	326	337	337			
55	215	219	219	208	196	198	207	205	200	201	203	198	196	201	214	219			
60	193	197	197	183	167	172	181	180	173	174	175	169	163	175	188	194			
65	168	173	171	156	136	144	155	153	147	148	149	141	133	148	162	170			
70	138	144	142	129	112	117	125	124	116	120	121	113	109	122	134	141			
75	96.0	110	108	95.0	91.1	85.4	92.7	91.2	78.7	87.8	87.9	81.4	86.9	89.6	102	108			
80	63.0	70.6	64.8	60.0	65.9	52.5	53.1	54.0	53.3	53.1	49.6	49.7	59.5	56.0	61.1	69.4			
85	37.0	33.9	28.6	28.4	29.4	23.0	21.3	22.1	23.4	21.7	19.5	19.5	23.8	23.9	27.7	34.2			
90	0.78	1.25	2.07	1.90	1.59	0.72	0.49	0.48	0.37	0.37	0.35	0.38	0.35	0.42	0.73	1.07			
95	0.34	0.34	0.33	0.32	0.30	0.30	0.30	0.31	0.30	0.31	0.31	0.30	0.28	0.30	0.33	0.32			
100	1.40	1.03	0.58	0.31	0.25	0.26	0.48	0.85	1.07	0.81	0.47	0.31	0.29	0.30	0.59	1.04			
105	1.01	0.72	0.45	0.25	0.24	0.24	0.36	0.49	0.61	0.49	0.41	0.34	0.33	0.32	0.41	0.71			
110	0.53	0.44	0.31	0.25	0.24	0.24	0.29	0.42	0.47	0.46	0.43	0.41	0.40	0.37	0.39	0.48			
115	0.40	0.35	0.31	0.28	0.31	0.25	0.29	0.35	0.46	0.49	0.52	0.55	0.54	0.49	0.45	0.45			
120	0.35	0.37	0.41	0.46	0.50	0.48	0.40	0.37	0.58	0.66	0.76	0.84	0.86	0.75	0.61	0.56			
125	0.76	0.77	0.85	0.98	1.22	0.96	0.83	0.76	0.79	0.94	1.05	0.91	1.26	0.82	0.82	0.76			
130	1.39	1.40	1.44	1.69	1.99	1.52	1.38	1.34	1.19	1.35	1.53	1.67	1.51	1.17	1.19	1.11			
135	2.12	2.14	2.18	2.58	2.64	2.33	2.00	2.13	1.74	1.84	2.02	2.59	2.79	2.04	1.68	1.61			
140	3.17	3.22	3.16	3.72	3.70	3.59	3.06	3.18	2.49	2.55	2.61	3.67	3.53	3.27	2.38	2.35			
145	4.27	4.35	4.23	4.91	4.83	4.72	4.24	4.11	3.28	3.32	3.53	4.84	4.62	4.46	3.25	3.22			
150	5.32	5.52	5.52	6.09	6.03	5.74	5.56	5.17	4.11	4.21	4.56	5.65	5.68	5.68	4.26	4.11			
155	5.92	6.21	6.02	6.82	6.62	6.32	6.19	5.79	5.07	5.16	5.65	6.21	6.48	6.63	4.94	5.06			
160	6.34	6.55	6.38	6.90	6.84	6.72	6.48	6.31	5.98	5.88	6.42	6.66	7.46	7.02	6.17	5.81			
165	6.79	7.06	7.05	7.77	7.65	7.23	7.01	6.92	6.38	6.37	6.79	7.16	7.95	8.08	7.09	6.38			
170	7.53	7.95	8.15	8.75	8.82	8.06	7.66	7.64	6.73	6.75	7.31	7.64	8.62	8.64	7.87	6.99			
175	8.44	8.76	8.90	9.15	9.09	8.40	8.18	8.37	7.82	7.76	8.10	8.23	8.87	8.96	8.24	7.67			
180	8.43	8.78	8.81	8.74	9.24	8.51	8.07	8.31	8.31	8.31	8.75	8.77	8.81	9.15	8.54	8.06			

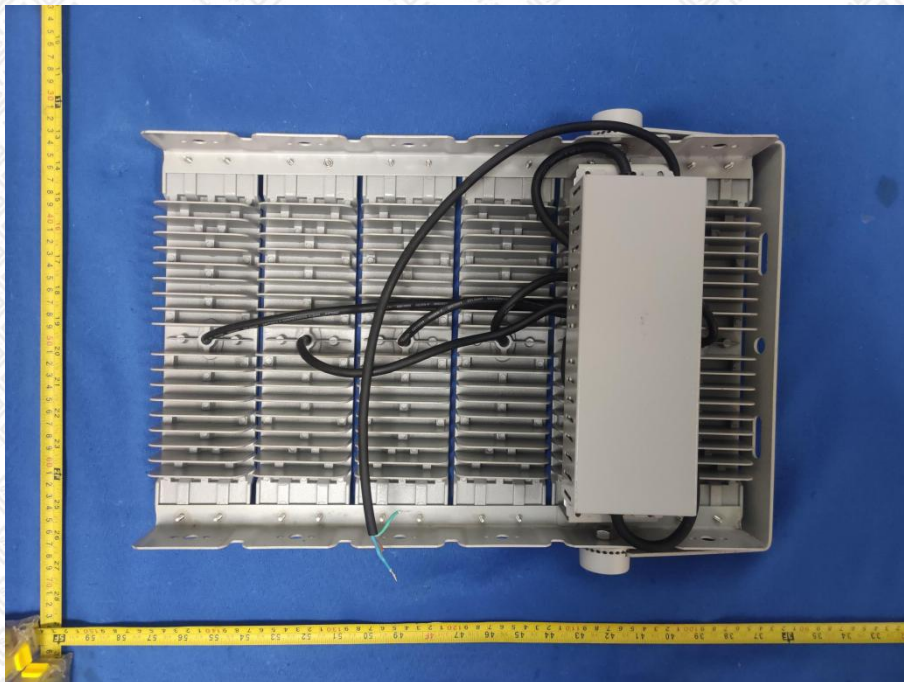




## 6. Photo of sample

### Photo document

Photos of FL-NSO5-300



----- End of test report -----