

ANSI/IES LM-79-19

MEASUREMENT AND TEST REPORT

For

GREEN CREATIVE LTD

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, Kowloon,
Hong Kong, China

Test Model: 11PAR30DIM/935FL40/SL+SL25D

Report Type:	Electrical and Photometric tests including: Luminous Flux, Chromaticity, Luminous Intensity Distribution, THD
Reviewed By:	Hill Liu Hill Liu
Report Number:	KS2230727-43621E-EE
Test Date:	2023-07-26 to 2023-07-27
Report Date:	2023-08-25
Approved by:	Blake Zhang / EE Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5/F(B-West) -7/F, the 3rd Phase of Wan Li Industrial Building D, Shihua Road, Futian Free Trade Zone Shenzhen, Guangdong, China. Tel: +86-755-33320018 Fax: +86-755-33320008
Test Facility:	Test facility was located at No.12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong, China.

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.(Shenzhen). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government.

1. Product Description[#]

General Information:

Two test samples were in good condition and received on 2023-07-27. One was tested in integrating sphere and the other was tested in goniophotometer

Model Tested: 11PAR30DIM/935FL40/SL+SL25D
Manufacturer: GREEN CREATIVE LTD
Brand Name: GREEN CREATIVE
Product Designation: Directional LED Lamp
Burning Time Before Test: 0hour(For New Products)

Rated Values:

Rated Voltage/Frequency: 120V AC 60Hz
Rated Power: 11W
Nominal CCT: 3500K
Nominal Lumen Output: 990lm

Family Declaration

The Model	Multiple Models	Differences Items	Details
11PAR30DIM/935FL40/SL+SL25D	11PAR30DIM/935NF25/SL	Model Number	11PAR30DIM/935FL40/SL+SL25D & 11PAR30DIM/935NF25/SL are the same product except for the model number.

2. Standards Used

- ANSI/IES LM-79-19: Approved method: Optical and Electrical Measurements of Solid-State Lighting Products
- ANSI C82.77-10-2014: Harmonic Emission Limits – Related Power Quality Requirements for Lighting
- *IES TM-30-18: IES Method for Evaluating Light Source Color Rendition (This method is not in NVLAP accreditation scope)

3. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	11010018	2022-11-10	2023-11-09
spectroradiometer	EVERFINE	HAAS-2000	G112048TS81331121	2022-11-10	2023-11-09
Digital Power Meter	EVERFINE	PF2010A	1011004	2022-11-10	2023-11-09
Digital CC&CV DC Power Supply	EVERFINE	WY305-V1	1101047	2022-11-10	2023-11-09
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2025-05-11
Special zero-voltage synchronous switching AC	EVERFINE	DPS1010-YF	1011001T	2022-11-10	2023-11-09
AC POWER SUPPLY	EVERFINE	VPS1030 PWM	1012017	2022-11-16	2023-11-15
Digital CC&CV DC Power Supply	EVERFINE	WY12010	1009009	2022-11-10	2023-11-09
Digital power meter	YOKOGAWA	WT-210	91j926132	2022-11-10	2023-11-09
full-field speed goniophotometer	EVERFINE	GO-R5000	YG108492N10120001	2022-11-10	2023-11-09
wireless remote thermohygrometer	N/A	AOK-5017B	N/A	2022-11-10	2023-11-09
Standard Light Source	EVERFINE	D908	1012003	2023-05-12	2025-05-11

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

4. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with ANSI/IES LM-79-19. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$ during measurement. And relative humidity is maintained between 10% and 65%. The air flow around the SSL product is less than 0.2m/s.

Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, Spectroradiometer, and integrating sphere. The integrating sphere system is calibrated by standard spectrum light source before measurement.

4π geometry was used during measurement. The product was operated in its intended orientation in application and was recorded in this report.

The uncertainty of the light output (luminous flux) measurements is $U=2.1\%$ ($K=2$), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is $U=22\text{K}$ ($K=2$), at the 95% confidence level. The uncertainty of the CRI is $U=2.1(K=2)$, at the 95% confidence level.

The uncertainty of power meter AC current $U=0.19\%$ of rdg, AC Voltage $U=0.18\%$ of rdg, Power $U=0.46\%$ ($K=2$), at the 95% confidence level.

Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement.

Type C goniophotometer was used for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. The product was operated in its intended orientation in application and was recorded in this report. The vertical angle (γ) test intervals were set no more than 1 degree while data for 5 degree intervals is reported. The horizontal angle (C plane) test intervals were set no more than 22.5 degree.

The uncertainty of the luminous intensity is $U=2.00\%$ ($K=2$), at the 95% confidence level.

Additional Test

The Additional Test item may not be covered by ANSI/IES LM-79-2019. Additional test including power factor, off-state power and THD, was measured by Digital Power Meter after stabilized at $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$. Test voltage for THD and power factor test would be equal to rated voltage or, in case of a voltage range, maximum value of that range.

The uncertainty of power meter AC current $U=0.19\%$ of rdg, AC Voltage $U=0.18\%$ of rdg, Power $U=0.46\%$ ($K=2$), at the 95% confidence level.

Fidelity Index and Gamut Index Calculation

The R_i , R_g was calculated according to IES TM-30-18 by using calculation tools. The calculation was based on the measured SPD from 380nm to 780nm with 1nm intervals. All the colors in this report is for reference only.

5. Test Result

[Integrating Sphere System]

The Stabilization time: **30 minutes**

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Base Up**

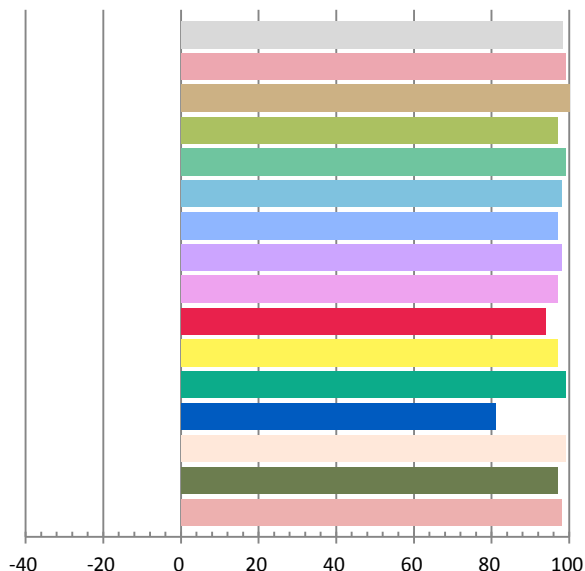
Photometric and Electrical Measurement Result

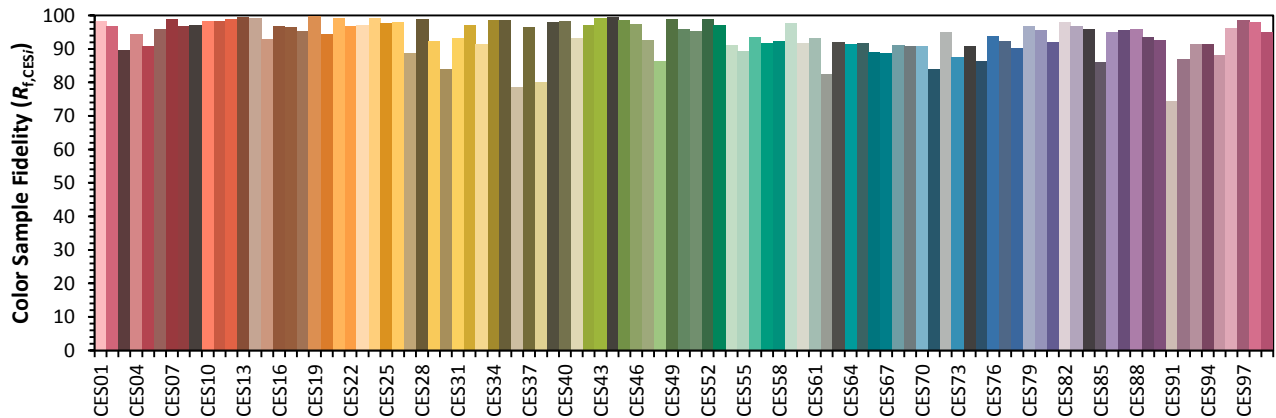
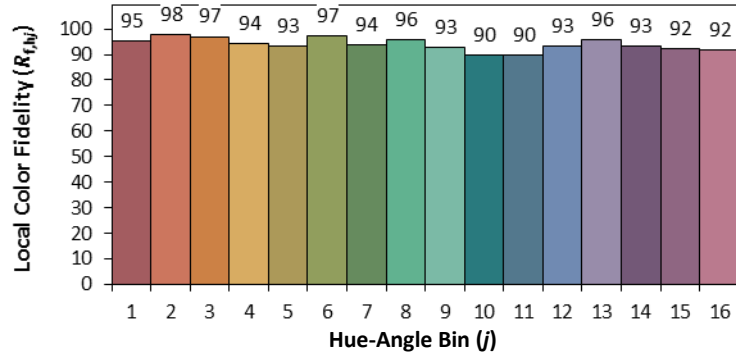
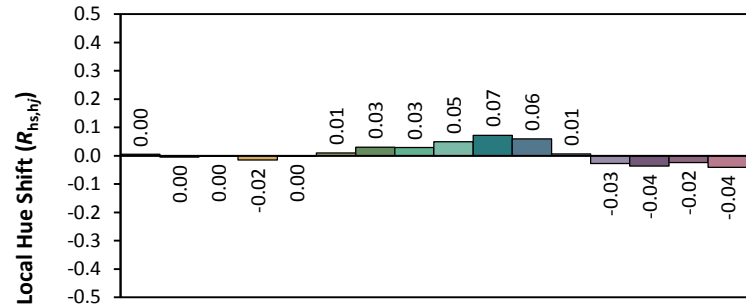
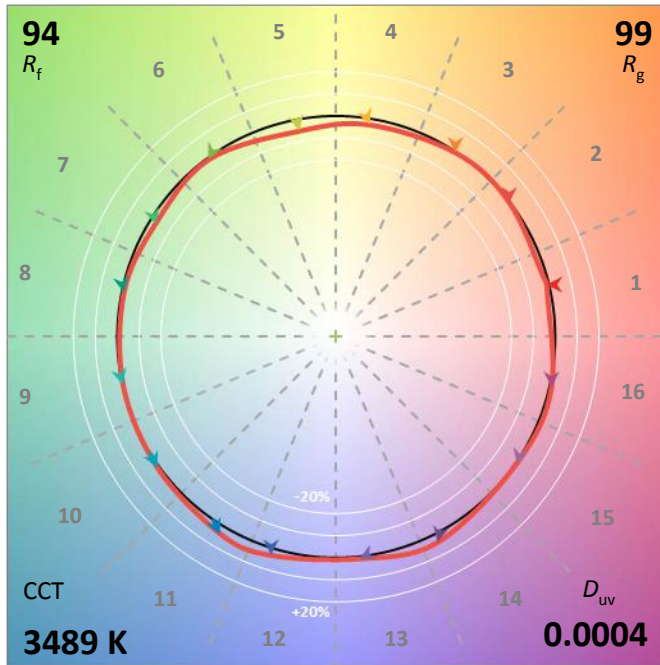
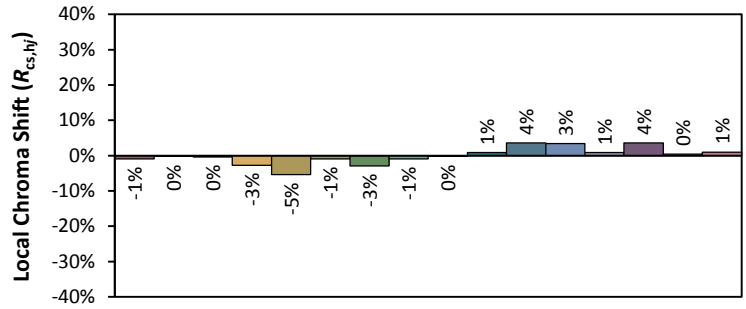
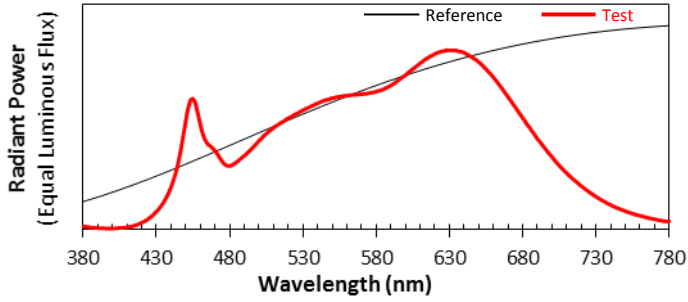
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.09112	10.4	0.9512	990.36	95.19

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
3.628	3489	0.000416	0.4064	0.3922	0.2358	0.5120

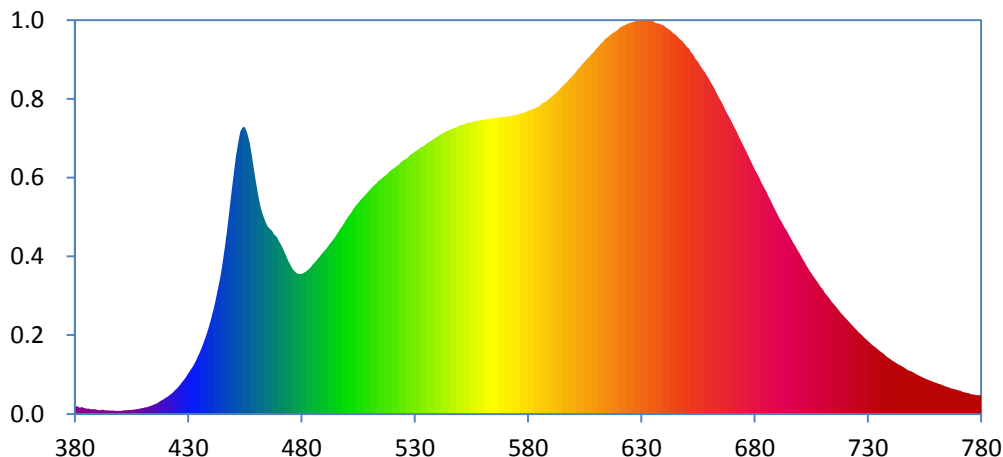
Color Rendering Index

Ra			
98.2			
R1	R2	R3	R4
99	100	97	99
R5	R6	R7	R8
98	97	98	97
R9	R10	R11	R12
94	97	99	81
R13	R14	R15	
99	97	98	





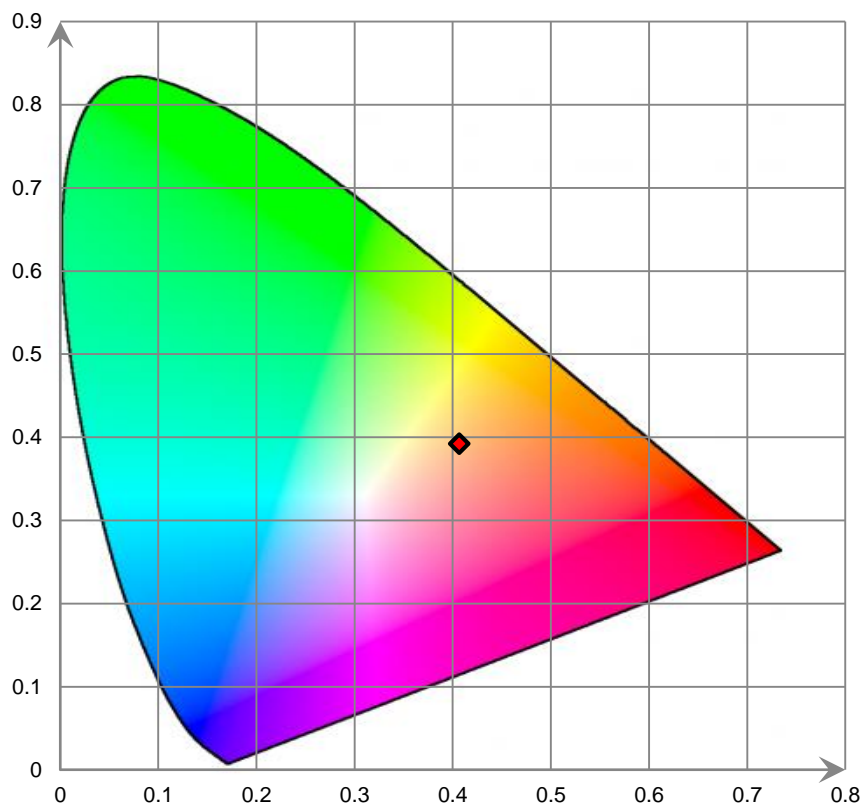
Relative Spectral Power Distribution



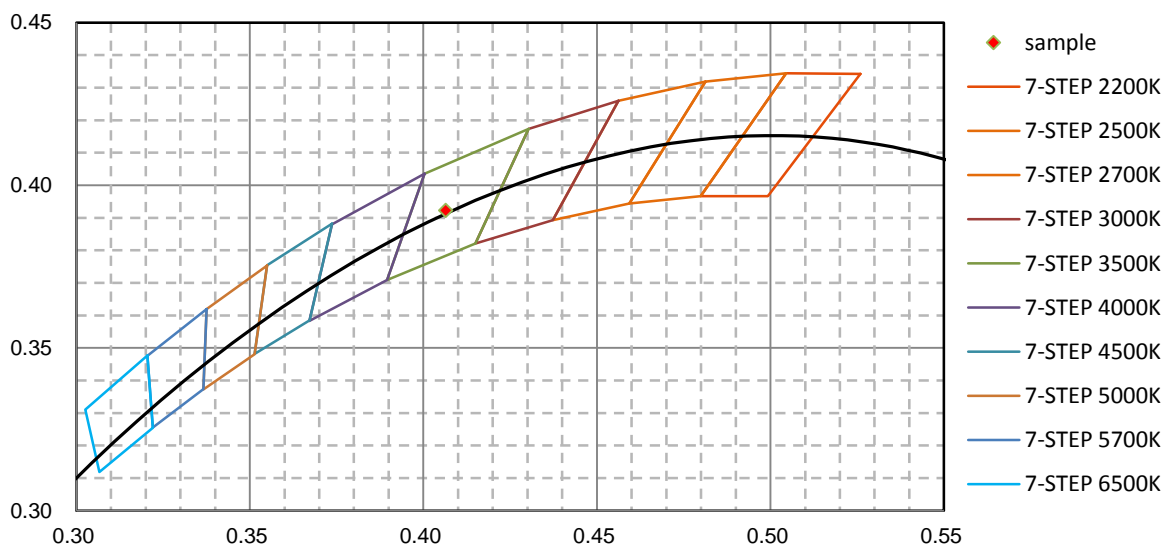
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	3.430E-01	421	8.214E-01	462	9.677E+00	503	9.623E+00	544	1.326E+01
381	3.628E-01	422	9.064E-01	463	9.305E+00	504	9.763E+00	545	1.331E+01
382	2.913E-01	423	9.889E-01	464	9.037E+00	505	9.884E+00	546	1.335E+01
383	3.243E-01	424	1.104E+00	465	8.808E+00	506	1.002E+01	547	1.339E+01
384	2.842E-01	425	1.195E+00	466	8.683E+00	507	1.016E+01	548	1.342E+01
385	2.460E-01	426	1.318E+00	467	8.585E+00	508	1.025E+01	549	1.349E+01
386	2.525E-01	427	1.445E+00	468	8.417E+00	509	1.038E+01	550	1.355E+01
387	2.243E-01	428	1.580E+00	469	8.304E+00	510	1.049E+01	551	1.354E+01
388	2.126E-01	429	1.722E+00	470	8.096E+00	511	1.061E+01	552	1.359E+01
389	2.101E-01	430	1.898E+00	471	7.912E+00	512	1.072E+01	553	1.365E+01
390	1.855E-01	431	2.042E+00	472	7.690E+00	513	1.080E+01	554	1.365E+01
391	1.750E-01	432	2.227E+00	473	7.446E+00	514	1.092E+01	555	1.369E+01
392	1.958E-01	433	2.422E+00	474	7.213E+00	515	1.101E+01	556	1.370E+01
393	1.717E-01	434	2.645E+00	475	6.999E+00	516	1.110E+01	557	1.375E+01
394	1.742E-01	435	2.867E+00	476	6.812E+00	517	1.117E+01	558	1.376E+01
395	1.593E-01	436	3.128E+00	477	6.684E+00	518	1.127E+01	559	1.377E+01
396	1.546E-01	437	3.411E+00	478	6.600E+00	519	1.140E+01	560	1.379E+01
397	1.598E-01	438	3.707E+00	479	6.562E+00	520	1.147E+01	561	1.380E+01
398	1.445E-01	439	4.049E+00	480	6.563E+00	521	1.155E+01	562	1.383E+01
399	1.495E-01	440	4.413E+00	481	6.613E+00	522	1.162E+01	563	1.385E+01
400	1.493E-01	441	4.827E+00	482	6.684E+00	523	1.171E+01	564	1.386E+01
401	1.605E-01	442	5.279E+00	483	6.782E+00	524	1.182E+01	565	1.387E+01
402	1.657E-01	443	5.780E+00	484	6.882E+00	525	1.189E+01	566	1.388E+01
403	1.679E-01	444	6.366E+00	485	7.007E+00	526	1.195E+01	567	1.390E+01
404	1.927E-01	445	7.008E+00	486	7.118E+00	527	1.202E+01	568	1.391E+01
405	1.936E-01	446	7.744E+00	487	7.249E+00	528	1.215E+01	569	1.393E+01
406	2.020E-01	447	8.533E+00	488	7.370E+00	529	1.220E+01	570	1.392E+01
407	2.189E-01	448	9.429E+00	489	7.510E+00	530	1.229E+01	571	1.398E+01
408	2.318E-01	449	1.034E+01	490	7.632E+00	531	1.235E+01	572	1.396E+01
409	2.596E-01	450	1.119E+01	491	7.749E+00	532	1.245E+01	573	1.398E+01
410	2.761E-01	451	1.205E+01	492	7.895E+00	533	1.252E+01	574	1.400E+01
411	3.036E-01	452	1.269E+01	493	8.036E+00	534	1.257E+01	575	1.404E+01
412	3.162E-01	453	1.325E+01	494	8.183E+00	535	1.265E+01	576	1.406E+01
413	3.640E-01	454	1.344E+01	495	8.332E+00	536	1.273E+01	577	1.410E+01
414	3.995E-01	455	1.346E+01	496	8.499E+00	537	1.279E+01	578	1.412E+01
415	4.494E-01	456	1.319E+01	497	8.663E+00	538	1.287E+01	579	1.416E+01
416	4.929E-01	457	1.275E+01	498	8.817E+00	539	1.294E+01	580	1.421E+01
417	5.505E-01	458	1.212E+01	499	8.983E+00	540	1.301E+01	581	1.425E+01
418	6.185E-01	459	1.142E+01	500	9.158E+00	541	1.307E+01	582	1.429E+01
419	6.814E-01	460	1.077E+01	501	9.311E+00	542	1.313E+01	583	1.432E+01
420	7.509E-01	461	1.016E+01	502	9.444E+00	543	1.319E+01	584	1.440E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	1.443E+01	626	1.837E+01	667	1.428E+01	708	6.128E+00	749	1.996E+00
586	1.455E+01	627	1.839E+01	668	1.407E+01	709	5.970E+00	750	1.938E+00
587	1.460E+01	628	1.846E+01	669	1.386E+01	710	5.843E+00	751	1.880E+00
588	1.466E+01	629	1.842E+01	670	1.365E+01	711	5.666E+00	752	1.827E+00
589	1.475E+01	630	1.845E+01	671	1.344E+01	712	5.551E+00	753	1.778E+00
590	1.483E+01	631	1.844E+01	672	1.324E+01	713	5.407E+00	754	1.716E+00
591	1.493E+01	632	1.842E+01	673	1.300E+01	714	5.266E+00	755	1.681E+00
592	1.502E+01	633	1.844E+01	674	1.279E+01	715	5.139E+00	756	1.622E+00
593	1.512E+01	634	1.845E+01	675	1.258E+01	716	5.013E+00	757	1.583E+00
594	1.524E+01	635	1.841E+01	676	1.237E+01	717	4.883E+00	758	1.543E+00
595	1.536E+01	636	1.834E+01	677	1.215E+01	718	4.756E+00	759	1.497E+00
596	1.546E+01	637	1.832E+01	678	1.192E+01	719	4.616E+00	760	1.464E+00
597	1.556E+01	638	1.830E+01	679	1.172E+01	720	4.499E+00	761	1.420E+00
598	1.569E+01	639	1.824E+01	680	1.149E+01	721	4.393E+00	762	1.388E+00
599	1.578E+01	640	1.820E+01	681	1.129E+01	722	4.264E+00	763	1.338E+00
600	1.590E+01	641	1.811E+01	682	1.106E+01	723	4.168E+00	764	1.306E+00
601	1.602E+01	642	1.804E+01	683	1.082E+01	724	4.049E+00	765	1.269E+00
602	1.617E+01	643	1.796E+01	684	1.064E+01	725	3.939E+00	766	1.227E+00
603	1.627E+01	644	1.784E+01	685	1.045E+01	726	3.815E+00	767	1.195E+00
604	1.640E+01	645	1.778E+01	686	1.021E+01	727	3.728E+00	768	1.162E+00
605	1.651E+01	646	1.767E+01	687	1.002E+01	728	3.624E+00	769	1.129E+00
606	1.663E+01	647	1.756E+01	688	9.788E+00	729	3.512E+00	770	1.108E+00
607	1.676E+01	648	1.748E+01	689	9.582E+00	730	3.423E+00	771	1.069E+00
608	1.687E+01	649	1.735E+01	690	9.364E+00	731	3.327E+00	772	1.033E+00
609	1.698E+01	650	1.722E+01	691	9.163E+00	732	3.219E+00	773	1.002E+00
610	1.711E+01	651	1.712E+01	692	8.993E+00	733	3.145E+00	774	9.820E-01
611	1.722E+01	652	1.694E+01	693	8.789E+00	734	3.055E+00	775	9.486E-01
612	1.735E+01	653	1.682E+01	694	8.610E+00	735	2.969E+00	776	9.122E-01
613	1.744E+01	654	1.664E+01	695	8.399E+00	736	2.884E+00	777	9.013E-01
614	1.757E+01	655	1.651E+01	696	8.221E+00	737	2.806E+00	778	8.752E-01
615	1.765E+01	656	1.633E+01	697	8.017E+00	738	2.713E+00	779	8.769E-01
616	1.774E+01	657	1.616E+01	698	7.852E+00	739	2.633E+00	780	8.786E-01
617	1.783E+01	658	1.602E+01	699	7.663E+00	740	2.566E+00		
618	1.789E+01	659	1.584E+01	700	7.492E+00	741	2.490E+00		
619	1.797E+01	660	1.566E+01	701	7.299E+00	742	2.420E+00		
620	1.807E+01	661	1.547E+01	702	7.113E+00	743	2.353E+00		
621	1.814E+01	662	1.530E+01	703	6.934E+00	744	2.283E+00		
622	1.821E+01	663	1.508E+01	704	6.762E+00	745	2.223E+00		
623	1.824E+01	664	1.488E+01	705	6.612E+00	746	2.170E+00		
624	1.831E+01	665	1.469E+01	706	6.440E+00	747	2.096E+00		
625	1.833E+01	666	1.450E+01	707	6.278E+00	748	2.040E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



Goniophotometer System]

The Stabilization time: **30 minutes**

Total operating time for luminous intensity distribution: **1.0 hour**

Test orientation: **Base up**

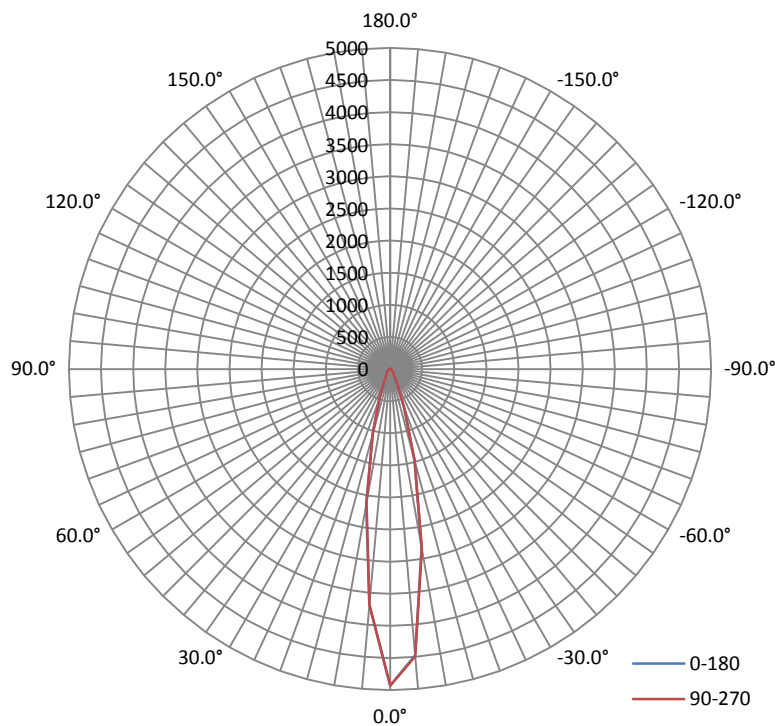
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.06	60	0.0920	10.500	0.9506

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I _{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
1001.49	95.38	5064	0.38	0.38

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I _{max}):	19.8	19.6	19.7	19.8	19.7
Field Angle (10% I _{max}):	41.3	41.1	41.1	41.0	41.1

Luminous Intensity (cd) Distribution Data

C Y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	4930	4930	4930	4930	4930	4930	4930	4930
5.0°	3689	3617	3554	3580	3684	3810	3982	4198
10.0°	2138	2069	2027	2035	2104	2204	2349	2522
15.0°	1043	1012	986	989	1028	1071	1152	1253
20.0°	480	462	452	455	468	490	515	566
25.0°	211	207	204	201	204	209	220	235
30.0°	125	123	123	124	125	125	125	128
35.0°	92	91	92	92	94	93	92	93
40.0°	74	73	73	74	74	74	76	78
45.0°	61	60	60	60	61	61	62	62
50.0°	48	47	47	48	49	49	49	50
55.0°	39	39	39	40	40	41	41	42
60.0°	31	31	31	31	32	32	33	34
65.0°	24	24	24	24	24	25	25	26
70.0°	18	17	17	18	18	18	19	19
75.0°	12	12	12	12	12	13	13	14
80.0°	8	7	8	7	8	8	9	9
85.0°	4	3	3	3	3	4	4	5
90.0°	1	1	1	1	1	1	1	2
95.0°	0	0	0	0	0	0	0	0
100.0°	0	0	0	0	0	0	0	0
105.0°	0	0	0	0	0	0	0	0
110.0°	0	0	0	0	0	0	0	0
115.0°	0	0	0	0	0	0	0	0
120.0°	0	0	0	0	0	0	0	0
125.0°	0	0	0	0	0	0	0	0
130.0°	0	0	0	0	0	0	0	0
135.0°	0	0	0	0	0	0	0	0
140.0°	1	1	1	1	1	1	1	1
145.0°	2	2	2	2	2	2	2	1
150.0°	2	2	2	2	2	2	2	2
155.0°	3	3	3	3	3	3	3	3
160.0°	3	3	3	3	3	3	3	3
165.0°	3	3	3	3	3	3	3	3
170.0°	2	2	2	2	3	3	3	3
175.0°	2	2	2	2	2	2	2	2
180.0°	1	1	1	1	1	1	1	1

Luminous Intensity (cd) Distribution Data (cont.)

$\begin{matrix} C \\ \backslash \\ Y \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	4930	4930	4930	4930	4930	4930	4930	4930
5.0°	4474	4614	4649	4605	4493	4305	4123	3948
10.0°	2826	2966	3000	2968	2841	2685	2523	2364
15.0°	1466	1508	1527	1499	1473	1365	1279	1197
20.0°	647	680	686	673	647	594	559	528
25.0°	274	289	292	285	272	255	241	231
30.0°	141	148	148	145	144	139	136	133
35.0°	98	101	102	102	103	101	98	95
40.0°	80	82	83	83	82	80	78	76
45.0°	65	66	66	65	65	64	64	63
50.0°	51	52	52	52	52	52	50	49
55.0°	43	44	44	44	43	42	42	41
60.0°	35	36	36	36	35	34	34	33
65.0°	27	28	28	28	27	27	26	25
70.0°	21	21	21	21	21	20	19	19
75.0°	15	15	16	15	15	14	14	13
80.0°	10	10	11	11	10	10	9	8
85.0°	6	6	6	6	5	5	5	4
90.0°	2	2	2	2	2	2	1	1
95.0°	0	0	0	0	0	0	0	0
100.0°	0	0	0	0	0	0	0	0
105.0°	0	0	0	0	0	0	0	0
110.0°	0	0	0	0	0	0	0	0
115.0°	0	0	0	0	0	0	0	0
120.0°	0	0	0	0	0	0	0	0
125.0°	0	0	0	0	0	0	0	0
130.0°	0	0	0	0	0	0	0	0
135.0°	0	0	0	0	0	0	0	0
140.0°	0	0	0	0	0	0	0	0
145.0°	0	0	0	0	0	0	0	0
150.0°	1	1	1	1	1	1	1	1
155.0°	1	1	1	1	1	1	1	1
160.0°	1	1	1	1	1	1	1	1
165.0°	1	1	1	1	1	1	1	1
170.0°	1	1	1	1	1	1	1	1
175.0°	1	1	1	1	1	1	1	1
180.0°	1	1	1	1	1	1	1	1

Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	107.3	10.72
5-10	228.7	22.83
10-15	209.8	20.94
15-20	138.9	13.88
20-25	77.4	7.73
25-30	44.0	4.39
30-35	32.9	3.29
35-40	28.7	2.87
40-45	25.9	2.58
45-50	22.6	2.26
50-55	19.8	1.98
55-60	17.4	1.73
60-65	14.3	1.43
65-70	11.3	1.13
70-75	8.6	0.86
75-80	6.0	0.59
80-85	3.6	0.36
85-90	1.5	0.16
90-95	0.3	0.03
95-100	0.0	0.00
100-105	0.0	0.00
105-110	0.0	0.00
110-115	0.0	0.00
115-120	0.0	0.01
120-125	0.0	0.00
125-130	0.0	0.00
130-135	0.1	0.01
135-140	0.1	0.01
140-145	0.3	0.02
145-150	0.4	0.04
150-155	0.4	0.04
155-160	0.4	0.04
160-165	0.3	0.04
165-170	0.2	0.02
170-175	0.1	0.01
175-180	0.0	0.00

Deg	Flux (lm)	%
0-5	107.3	10.72
0-10	336.0	33.55
0-15	545.8	54.49
0-20	684.7	68.37
0-25	762.1	76.10
0-30	806.1	80.49
0-35	839.0	83.78
0-40	867.8	86.65
0-45	893.7	89.23
0-50	916.3	91.49
0-55	936.1	93.47
0-60	953.4	95.20
0-65	967.7	96.63
0-70	979.1	97.76
0-75	987.6	98.62
0-80	993.6	99.21
0-85	997.2	99.57
0-90	998.7	99.73
0-95	999.1	99.76
0-100	999.1	99.76
0-105	999.1	99.76
0-110	999.1	99.76
0-115	999.1	99.76
0-120	999.1	99.77
0-125	999.2	99.77
0-130	999.2	99.77
0-135	999.2	99.78
0-140	999.4	99.79
0-145	999.6	99.81
0-150	1000.0	99.85
0-155	1000.4	99.89
0-160	1000.8	99.93
0-165	1001.1	99.97
0-170	1001.4	99.99
0-175	1001.5	100.00
0-180	1001.5	100.00

[Additional Test]

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120.0	60	16.83%

6. Product Photo



Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. This report includes some test methods are not in NVLAP accreditation scope marked *.
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor $K=2$ with the 95% confidence interval.
6. This report cannot be reproduced except in full, without prior written approval of the Company.
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*****END OF REPORT*****