

IES LM-79-08

MEASUREMENT AND TEST REPORT

For

GREEN CREATIVE LTD

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

Test Model: 15.5PAR38DIM/930NF25/SL

Report Type:	Electrical and Photometric tests including: Luminous Flux, Chromaticity, Luminous Intensity Distribution, THD
Reviewed By:	Hill Liu <i>Hill Liu</i>
Report Number:	KS2230727-43673E-EE-1
Test Date:	2023-07-28 to 2023-08-12
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, and used for testing. One was tested in integrating sphere and the other was tested in goniophotometer

Model Tested: 15.5PAR38DIM/930NF25/SL
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 60Hz
Rated Power: 15.5 W
Nominal CCT: 3000K
Nominal Lumen Output: 1370 lm

Family Declaration

The Model	Multiple Models	Variations	Details
15.5PAR38DIM/930NF25/SL	15.5PAR38DIM/930FL40/B/SL+SL 25D 15.5PAR38DIM/930NF25/B/SL	Model Number & Finishing Color	15.5PAR38DIM/930FL40/B/SL+SL 25D & 15.5PAR38DIM/930NF25/B/SL are the same product except for the model number.
			The finishing color of model 15.5PAR38DIM/930NF25/SL is white; The finishing color of model 15.5PAR38DIM/930FL40/B/SL+SL 25D & 15.5PAR38DIM/930NF25/B/SL is black.

2. Standards Used

- IES LM-79-08: Approved Method: Electrical & Photometric Measurement 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

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
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 IES LM-79-08. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ during measurement. And relative humidity is less than 65%.

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 IESNA LM-79-2008. Additional test including power factor, off-state power and THD, was measured by Digital Power Meter after stabilized at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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_f , 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

Model: 15.5PAR38DIM/930NF25/SL

[Integrating Sphere System]

The Stabilization time: **30 minutes**

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

Test orientation: **Base Up**

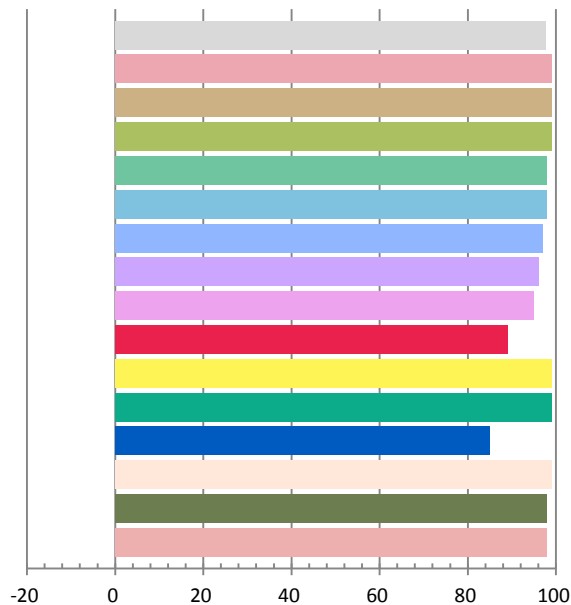
Photometric and Electrical Measurement Result

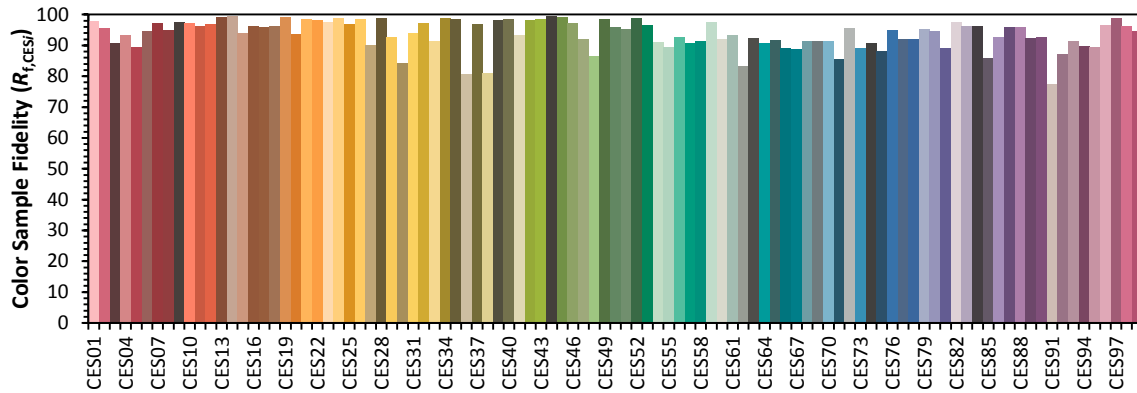
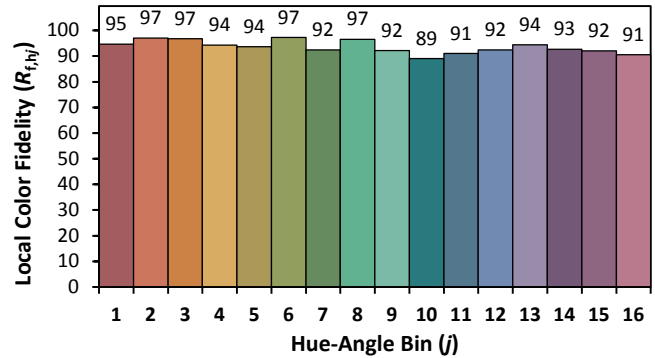
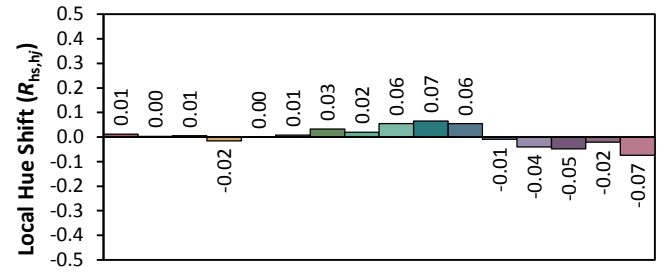
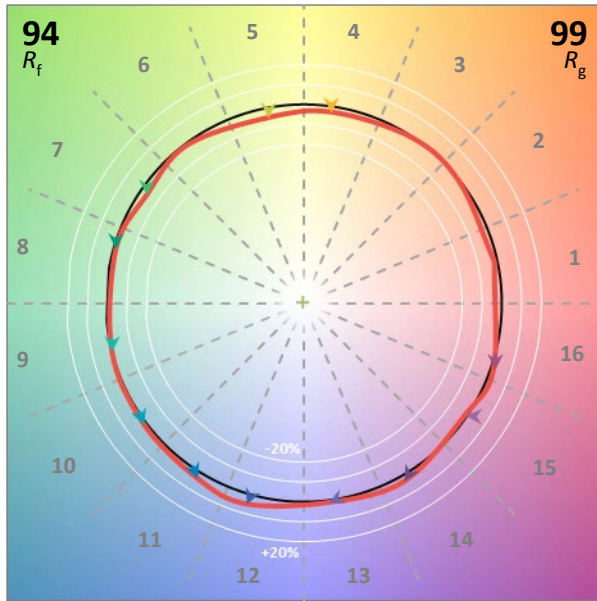
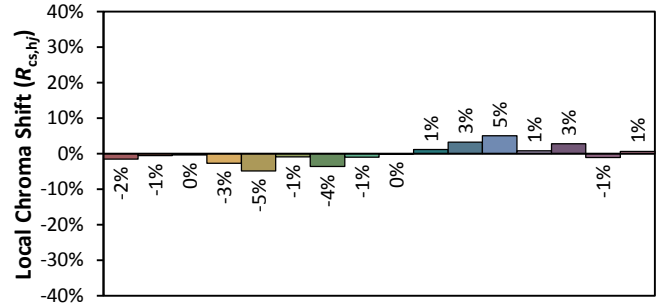
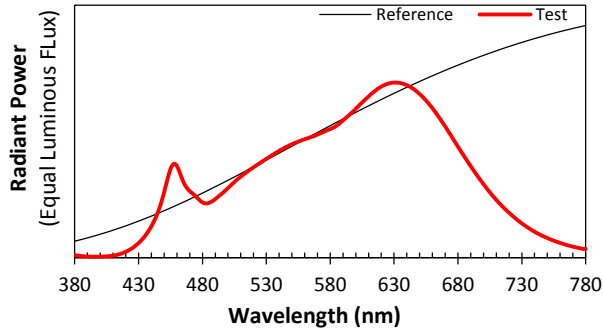
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1329	15.36	0.9629	1395.8	90.88

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
5.2142	3113	-0.00112	0.4276	0.3980	0.2472	0.5176

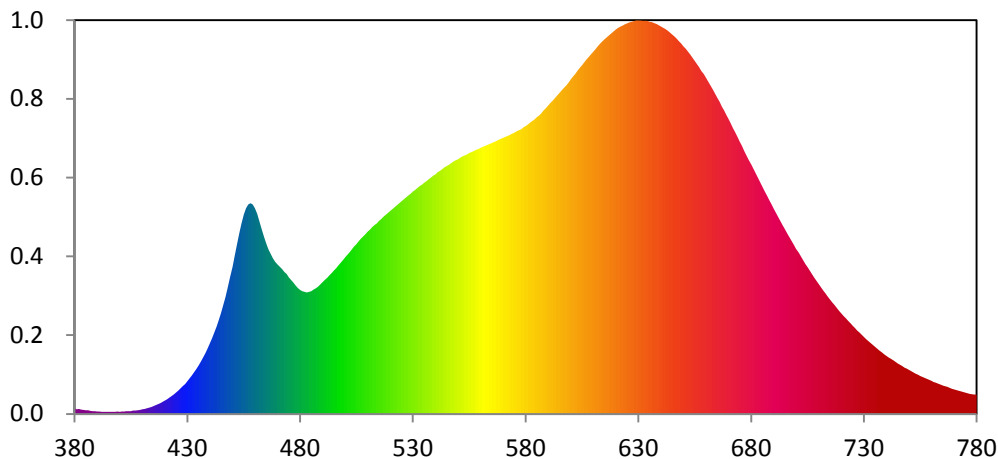
Color Rendering Index

Ra			
97.7			
R1	R2	R3	R4
99	99	99	98
R5	R6	R7	R8
98	97	96	95
R9	R10	R11	R12
89	99	99	85
R13	R14	R15	
99	98	98	





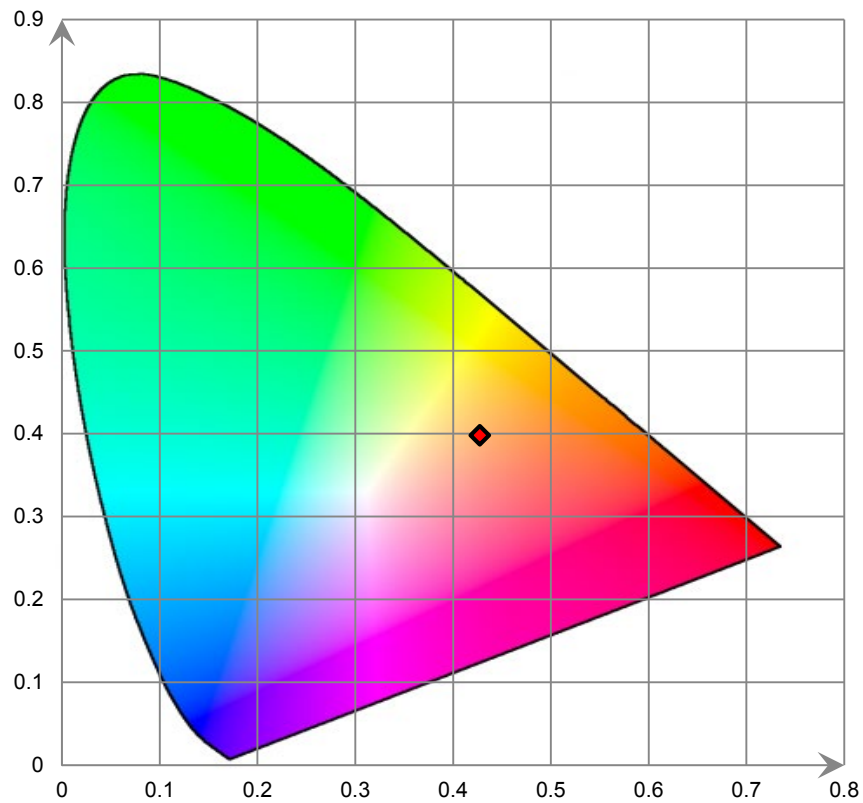
Relative Spectral Power Distribution



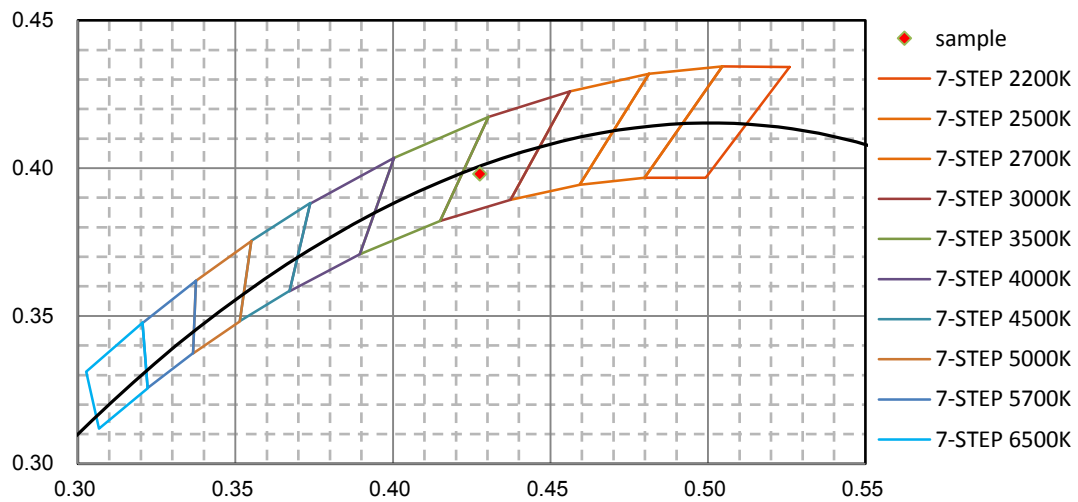
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	4.037E-01	421	1.053E+00	462	1.387E+01	503	1.187E+01	544	1.775E+01
381	3.412E-01	422	1.157E+00	463	1.331E+01	504	1.206E+01	545	1.786E+01
382	3.556E-01	423	1.270E+00	464	1.278E+01	505	1.223E+01	546	1.795E+01
383	3.202E-01	424	1.398E+00	465	1.229E+01	506	1.243E+01	547	1.805E+01
384	2.841E-01	425	1.531E+00	466	1.187E+01	507	1.261E+01	548	1.817E+01
385	2.600E-01	426	1.672E+00	467	1.153E+01	508	1.278E+01	549	1.827E+01
386	2.542E-01	427	1.824E+00	468	1.122E+01	509	1.294E+01	550	1.834E+01
387	2.089E-01	428	1.999E+00	469	1.097E+01	510	1.312E+01	551	1.845E+01
388	1.893E-01	429	2.167E+00	470	1.077E+01	511	1.326E+01	552	1.853E+01
389	1.880E-01	430	2.356E+00	471	1.058E+01	512	1.344E+01	553	1.861E+01
390	1.805E-01	431	2.561E+00	472	1.043E+01	513	1.361E+01	554	1.869E+01
391	1.748E-01	432	2.772E+00	473	1.023E+01	514	1.373E+01	555	1.879E+01
392	1.616E-01	433	3.002E+00	474	1.008E+01	515	1.391E+01	556	1.886E+01
393	1.589E-01	434	3.229E+00	475	9.841E+00	516	1.405E+01	557	1.894E+01
394	1.436E-01	435	3.498E+00	476	9.653E+00	517	1.420E+01	558	1.903E+01
395	1.493E-01	436	3.768E+00	477	9.453E+00	518	1.435E+01	559	1.908E+01
396	1.489E-01	437	4.061E+00	478	9.252E+00	519	1.449E+01	560	1.916E+01
397	1.514E-01	438	4.379E+00	479	9.072E+00	520	1.462E+01	561	1.924E+01
398	1.571E-01	439	4.710E+00	480	8.943E+00	521	1.477E+01	562	1.930E+01
399	1.641E-01	440	5.075E+00	481	8.835E+00	522	1.490E+01	563	1.937E+01
400	1.578E-01	441	5.458E+00	482	8.796E+00	523	1.505E+01	564	1.945E+01
401	1.711E-01	442	5.868E+00	483	8.758E+00	524	1.517E+01	565	1.951E+01
402	1.753E-01	443	6.290E+00	484	8.797E+00	525	1.531E+01	566	1.958E+01
403	1.889E-01	444	6.761E+00	485	8.843E+00	526	1.545E+01	567	1.965E+01
404	1.953E-01	445	7.278E+00	486	8.950E+00	527	1.559E+01	568	1.974E+01
405	2.067E-01	446	7.855E+00	487	9.055E+00	528	1.572E+01	569	1.980E+01
406	2.337E-01	447	8.434E+00	488	9.164E+00	529	1.585E+01	570	1.988E+01
407	2.472E-01	448	9.119E+00	489	9.324E+00	530	1.600E+01	571	1.994E+01
408	2.738E-01	449	9.835E+00	490	9.480E+00	531	1.613E+01	572	2.001E+01
409	2.963E-01	450	1.060E+01	491	9.640E+00	532	1.626E+01	573	2.009E+01
410	3.326E-01	451	1.142E+01	492	9.811E+00	533	1.640E+01	574	2.018E+01
411	3.600E-01	452	1.222E+01	493	9.985E+00	534	1.652E+01	575	2.025E+01
412	3.953E-01	453	1.302E+01	494	1.015E+01	535	1.665E+01	576	2.036E+01
413	4.421E-01	454	1.372E+01	495	1.033E+01	536	1.677E+01	577	2.043E+01
414	4.965E-01	455	1.434E+01	496	1.050E+01	537	1.690E+01	578	2.051E+01
415	5.545E-01	456	1.480E+01	497	1.070E+01	538	1.703E+01	579	2.064E+01
416	6.260E-01	457	1.508E+01	498	1.089E+01	539	1.716E+01	580	2.074E+01
417	6.960E-01	458	1.519E+01	499	1.106E+01	540	1.726E+01	581	2.086E+01
418	7.732E-01	459	1.509E+01	500	1.127E+01	541	1.742E+01	582	2.098E+01
419	8.593E-01	460	1.482E+01	501	1.146E+01	542	1.752E+01	583	2.109E+01
420	9.508E-01	461	1.441E+01	502	1.166E+01	543	1.763E+01	584	2.121E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	2.137E+01	626	2.821E+01	667	2.215E+01	708	9.815E+00	749	3.255E+00
586	2.150E+01	627	2.824E+01	668	2.187E+01	709	9.581E+00	750	3.161E+00
587	2.166E+01	628	2.829E+01	669	2.155E+01	710	9.339E+00	751	3.079E+00
588	2.185E+01	629	2.833E+01	670	2.124E+01	711	9.112E+00	752	2.988E+00
589	2.203E+01	630	2.833E+01	671	2.092E+01	712	8.888E+00	753	2.905E+00
590	2.221E+01	631	2.834E+01	672	2.058E+01	713	8.671E+00	754	2.823E+00
591	2.238E+01	632	2.832E+01	673	2.026E+01	714	8.451E+00	755	2.743E+00
592	2.256E+01	633	2.831E+01	674	1.995E+01	715	8.246E+00	756	2.664E+00
593	2.275E+01	634	2.831E+01	675	1.961E+01	716	8.037E+00	757	2.593E+00
594	2.292E+01	635	2.825E+01	676	1.929E+01	717	7.838E+00	758	2.512E+00
595	2.312E+01	636	2.821E+01	677	1.894E+01	718	7.642E+00	759	2.448E+00
596	2.329E+01	637	2.815E+01	678	1.862E+01	719	7.441E+00	760	2.378E+00
597	2.349E+01	638	2.807E+01	679	1.830E+01	720	7.255E+00	761	2.304E+00
598	2.366E+01	639	2.800E+01	680	1.797E+01	721	7.069E+00	762	2.247E+00
599	2.387E+01	640	2.791E+01	681	1.765E+01	722	6.887E+00	763	2.179E+00
600	2.410E+01	641	2.781E+01	682	1.732E+01	723	6.701E+00	764	2.110E+00
601	2.430E+01	642	2.771E+01	683	1.700E+01	724	6.526E+00	765	2.050E+00
602	2.449E+01	643	2.759E+01	684	1.668E+01	725	6.360E+00	766	1.993E+00
603	2.472E+01	644	2.746E+01	685	1.636E+01	726	6.180E+00	767	1.936E+00
604	2.492E+01	645	2.732E+01	686	1.604E+01	727	6.015E+00	768	1.878E+00
605	2.512E+01	646	2.719E+01	687	1.573E+01	728	5.861E+00	769	1.822E+00
606	2.532E+01	647	2.702E+01	688	1.542E+01	729	5.695E+00	770	1.773E+00
607	2.552E+01	648	2.685E+01	689	1.510E+01	730	5.543E+00	771	1.725E+00
608	2.570E+01	649	2.667E+01	690	1.479E+01	731	5.393E+00	772	1.674E+00
609	2.589E+01	650	2.648E+01	691	1.450E+01	732	5.248E+00	773	1.630E+00
610	2.608E+01	651	2.630E+01	692	1.419E+01	733	5.101E+00	774	1.578E+00
611	2.627E+01	652	2.610E+01	693	1.389E+01	734	4.958E+00	775	1.535E+00
612	2.647E+01	653	2.589E+01	694	1.358E+01	735	4.825E+00	776	1.491E+00
613	2.665E+01	654	2.566E+01	695	1.330E+01	736	4.686E+00	777	1.452E+00
614	2.681E+01	655	2.544E+01	696	1.301E+01	737	4.555E+00	778	1.409E+00
615	2.698E+01	656	2.519E+01	697	1.273E+01	738	4.432E+00	779	1.400E+00
616	2.712E+01	657	2.497E+01	698	1.245E+01	739	4.307E+00	780	1.403E+00
617	2.729E+01	658	2.469E+01	699	1.218E+01	740	4.190E+00		
618	2.742E+01	659	2.445E+01	700	1.188E+01	741	4.070E+00		
619	2.755E+01	660	2.420E+01	701	1.162E+01	742	3.967E+00		
620	2.768E+01	661	2.391E+01	702	1.135E+01	743	3.851E+00		
621	2.781E+01	662	2.363E+01	703	1.107E+01	744	3.736E+00		
622	2.789E+01	663	2.335E+01	704	1.081E+01	745	3.636E+00		
623	2.798E+01	664	2.306E+01	705	1.056E+01	746	3.533E+00		
624	2.807E+01	665	2.276E+01	706	1.031E+01	747	3.445E+00		
625	2.814E+01	666	2.247E+01	707	1.005E+01	748	3.342E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



Model: 15.5PAR38DIM/930FL40/B/SL+SL25D

[Integrating Sphere System]

The Stabilization time: **30 minutes**

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

Test orientation: **Base up**

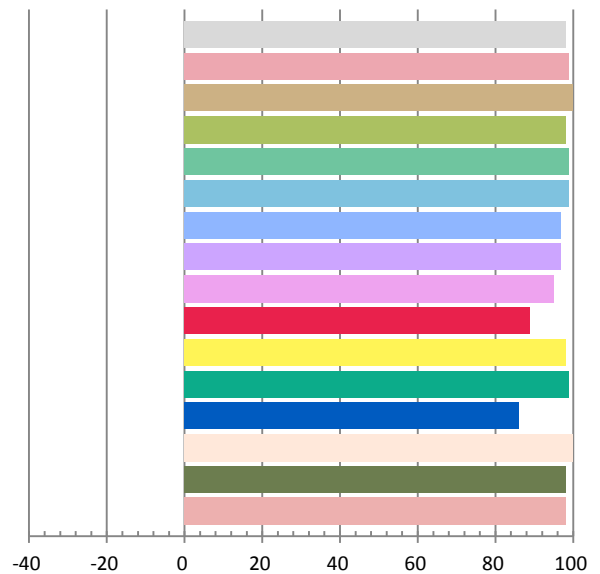
Photometric and Electrical Measurement Result

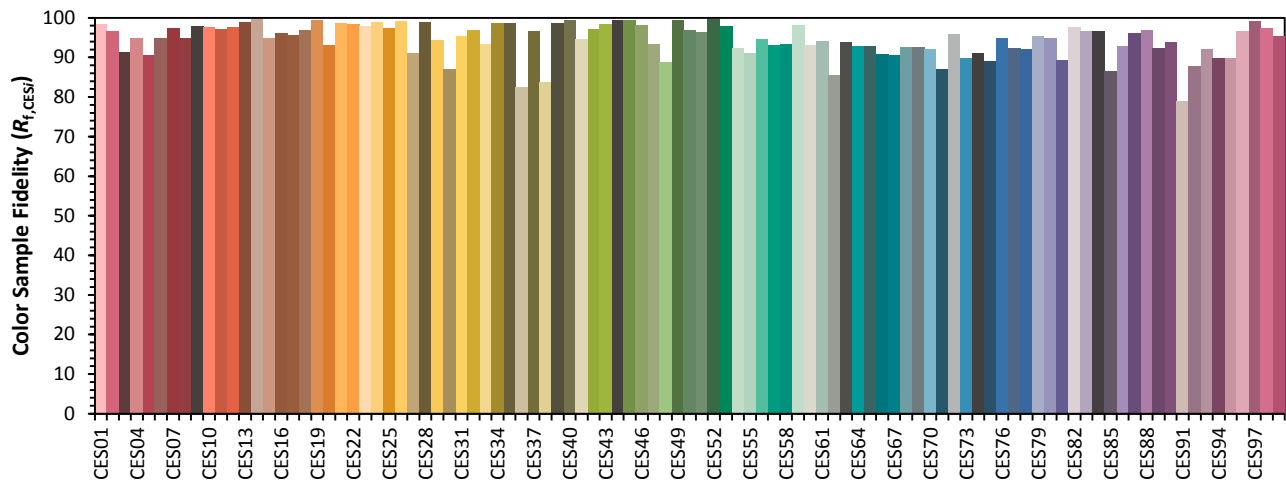
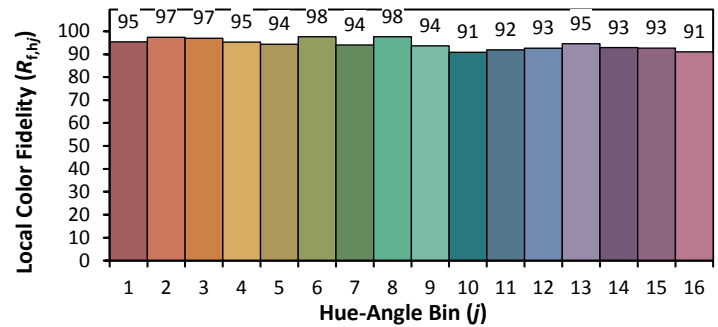
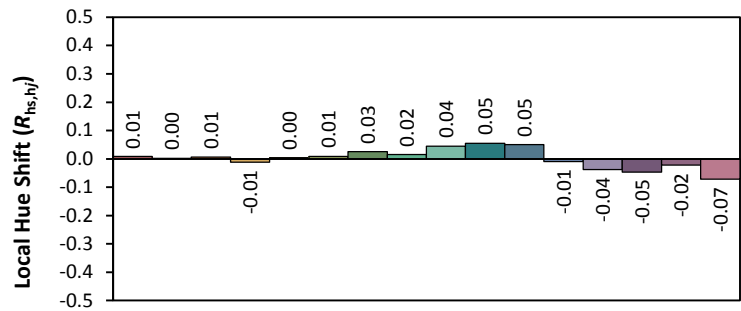
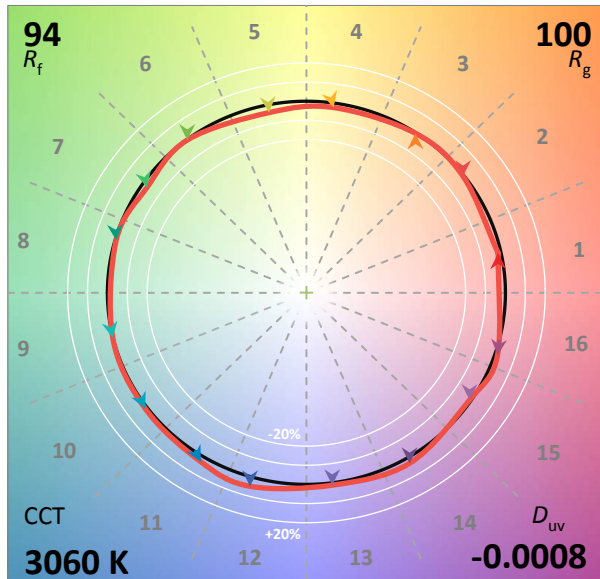
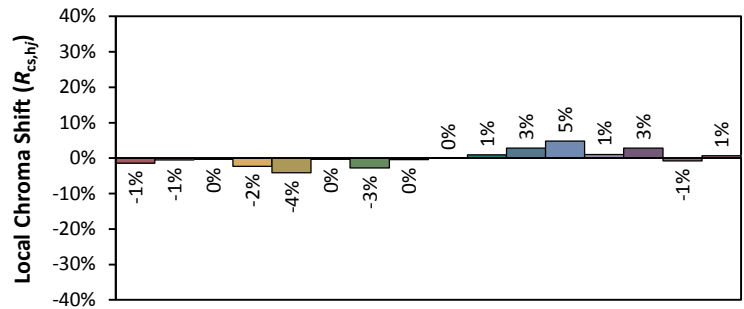
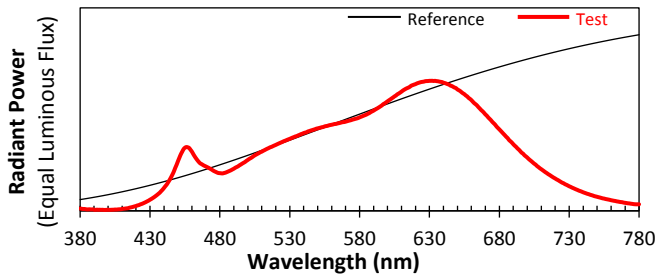
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1315	15.27	0.9683	1378.6	90.26

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
5.143	3061	-0.00077	0.4316	0.4003	0.2488	0.5191

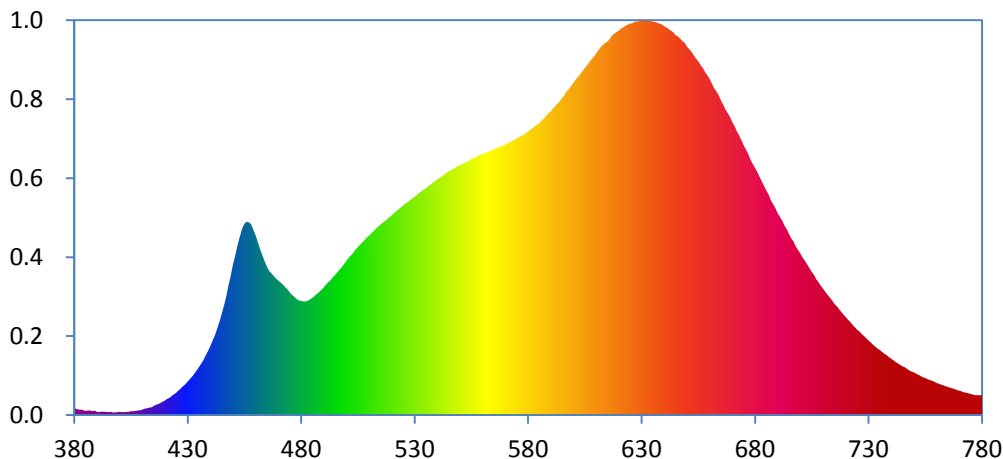
Color Rendering Index

Ra			
98.0			
R1	R2	R3	R4
99	100	98	99
R5	R6	R7	R8
99	97	97	95
R9	R10	R11	R12
89	98	99	86
R13	R14	R15	
100	98	98	





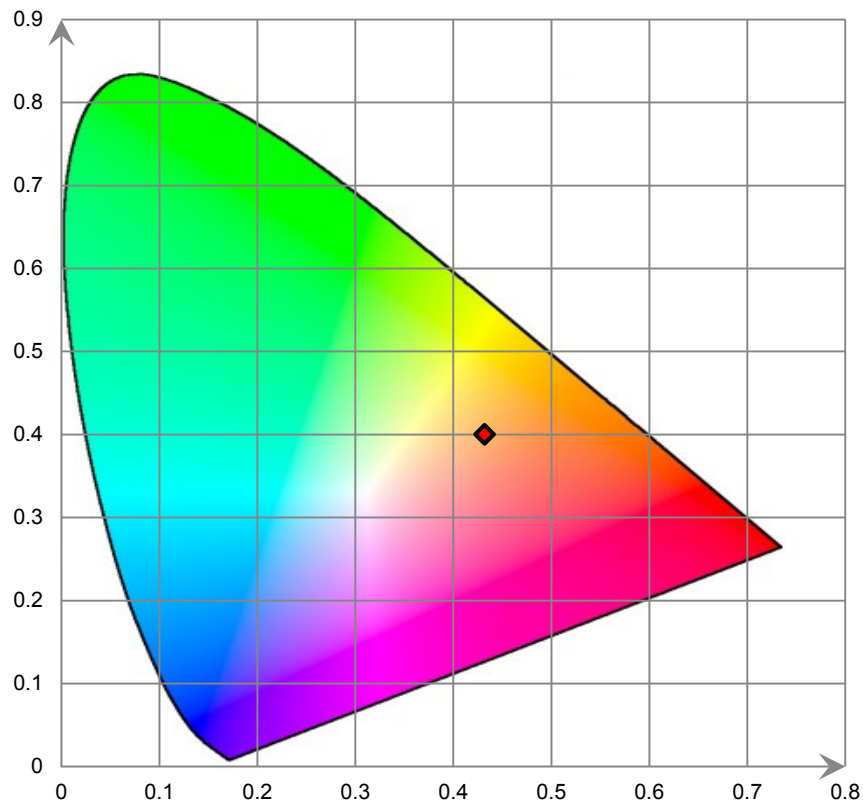
Relative Spectral Power Distribution



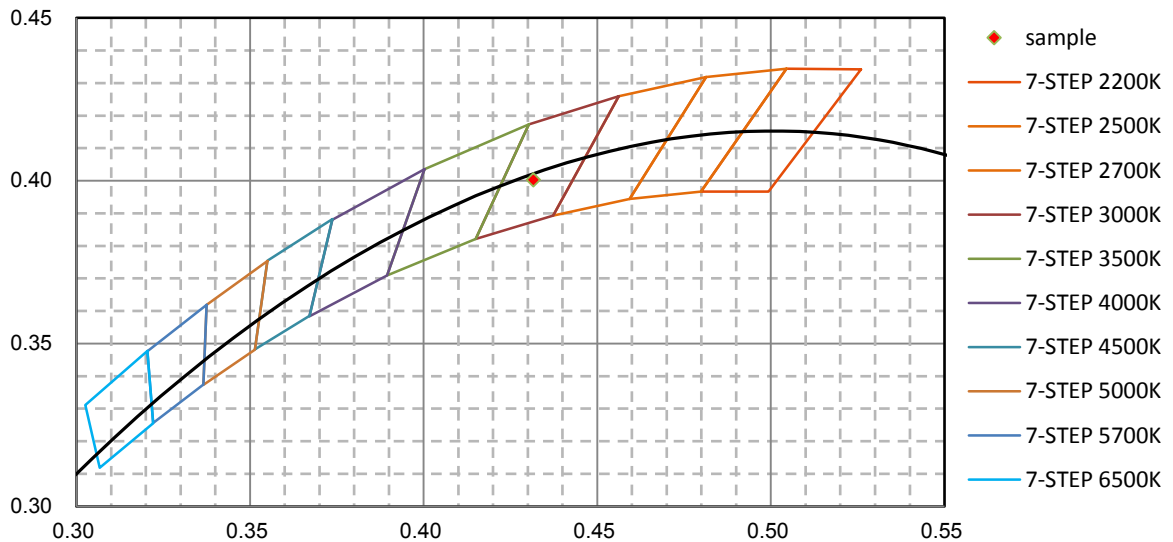
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	5.087E-01	421	1.180E+00	462	1.190E+01	503	1.171E+01	544	1.745E+01
381	4.513E-01	422	1.249E+00	463	1.145E+01	504	1.194E+01	545	1.756E+01
382	3.989E-01	423	1.399E+00	464	1.104E+01	505	1.214E+01	546	1.765E+01
383	4.017E-01	424	1.498E+00	465	1.067E+01	506	1.231E+01	547	1.775E+01
384	3.510E-01	425	1.627E+00	466	1.037E+01	507	1.248E+01	548	1.784E+01
385	3.042E-01	426	1.771E+00	467	1.021E+01	508	1.264E+01	549	1.797E+01
386	3.188E-01	427	1.914E+00	468	1.001E+01	509	1.283E+01	550	1.804E+01
387	3.281E-01	428	2.080E+00	469	9.845E+00	510	1.295E+01	551	1.812E+01
388	2.876E-01	429	2.234E+00	470	9.701E+00	511	1.313E+01	552	1.820E+01
389	3.274E-01	430	2.431E+00	471	9.545E+00	512	1.328E+01	553	1.829E+01
390	2.257E-01	431	2.603E+00	472	9.395E+00	513	1.345E+01	554	1.834E+01
391	2.149E-01	432	2.802E+00	473	9.219E+00	514	1.360E+01	555	1.847E+01
392	2.485E-01	433	3.004E+00	474	9.049E+00	515	1.374E+01	556	1.854E+01
393	2.217E-01	434	3.231E+00	475	8.843E+00	516	1.390E+01	557	1.859E+01
394	2.374E-01	435	3.466E+00	476	8.667E+00	517	1.400E+01	558	1.870E+01
395	2.136E-01	436	3.721E+00	477	8.526E+00	518	1.415E+01	559	1.877E+01
396	2.305E-01	437	3.977E+00	478	8.379E+00	519	1.429E+01	560	1.883E+01
397	1.925E-01	438	4.311E+00	479	8.269E+00	520	1.442E+01	561	1.890E+01
398	1.963E-01	439	4.628E+00	480	8.242E+00	521	1.457E+01	562	1.899E+01
399	2.121E-01	440	5.002E+00	481	8.202E+00	522	1.471E+01	563	1.901E+01
400	2.223E-01	441	5.395E+00	482	8.188E+00	523	1.485E+01	564	1.910E+01
401	2.110E-01	442	5.769E+00	483	8.271E+00	524	1.498E+01	565	1.917E+01
402	2.195E-01	443	6.255E+00	484	8.348E+00	525	1.512E+01	566	1.924E+01
403	2.355E-01	444	6.744E+00	485	8.478E+00	526	1.526E+01	567	1.933E+01
404	2.418E-01	445	7.308E+00	486	8.611E+00	527	1.537E+01	568	1.940E+01
405	2.823E-01	446	7.905E+00	487	8.745E+00	528	1.551E+01	569	1.943E+01
406	2.673E-01	447	8.553E+00	488	8.884E+00	529	1.563E+01	570	1.951E+01
407	3.077E-01	448	9.346E+00	489	9.057E+00	530	1.575E+01	571	1.960E+01
408	3.330E-01	449	1.005E+01	490	9.215E+00	531	1.588E+01	572	1.969E+01
409	3.462E-01	450	1.085E+01	491	9.420E+00	532	1.602E+01	573	1.977E+01
410	4.009E-01	451	1.160E+01	492	9.578E+00	533	1.613E+01	574	1.985E+01
411	4.523E-01	452	1.233E+01	493	9.733E+00	534	1.627E+01	575	1.996E+01
412	4.814E-01	453	1.291E+01	494	9.950E+00	535	1.635E+01	576	2.004E+01
413	5.316E-01	454	1.348E+01	495	1.013E+01	536	1.650E+01	577	2.013E+01
414	5.581E-01	455	1.380E+01	496	1.033E+01	537	1.662E+01	578	2.021E+01
415	6.530E-01	456	1.395E+01	497	1.051E+01	538	1.677E+01	579	2.031E+01
416	7.351E-01	457	1.389E+01	498	1.069E+01	539	1.687E+01	580	2.045E+01
417	7.952E-01	458	1.375E+01	499	1.093E+01	540	1.701E+01	581	2.058E+01
418	8.818E-01	459	1.335E+01	500	1.113E+01	541	1.711E+01	582	2.070E+01
419	9.735E-01	460	1.294E+01	501	1.135E+01	542	1.719E+01	583	2.083E+01
420	1.058E+00	461	1.240E+01	502	1.152E+01	543	1.736E+01	584	2.095E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	2.108E+01	626	2.827E+01	667	2.205E+01	708	9.573E+00	749	3.144E+00
586	2.125E+01	627	2.836E+01	668	2.178E+01	709	9.321E+00	750	3.064E+00
587	2.139E+01	628	2.839E+01	669	2.146E+01	710	9.110E+00	751	2.980E+00
588	2.160E+01	629	2.840E+01	670	2.110E+01	711	8.890E+00	752	2.905E+00
589	2.176E+01	630	2.844E+01	671	2.082E+01	712	8.668E+00	753	2.816E+00
590	2.192E+01	631	2.844E+01	672	2.045E+01	713	8.441E+00	754	2.726E+00
591	2.212E+01	632	2.845E+01	673	2.014E+01	714	8.247E+00	755	2.675E+00
592	2.230E+01	633	2.841E+01	674	1.983E+01	715	8.021E+00	756	2.588E+00
593	2.248E+01	634	2.844E+01	675	1.946E+01	716	7.842E+00	757	2.529E+00
594	2.267E+01	635	2.838E+01	676	1.916E+01	717	7.632E+00	758	2.467E+00
595	2.287E+01	636	2.835E+01	677	1.885E+01	718	7.432E+00	759	2.403E+00
596	2.308E+01	637	2.828E+01	678	1.845E+01	719	7.239E+00	760	2.318E+00
597	2.335E+01	638	2.822E+01	679	1.813E+01	720	7.071E+00	761	2.260E+00
598	2.352E+01	639	2.817E+01	680	1.782E+01	721	6.870E+00	762	2.195E+00
599	2.374E+01	640	2.804E+01	681	1.750E+01	722	6.718E+00	763	2.150E+00
600	2.396E+01	641	2.795E+01	682	1.717E+01	723	6.521E+00	764	2.072E+00
601	2.418E+01	642	2.784E+01	683	1.684E+01	724	6.336E+00	765	2.024E+00
602	2.438E+01	643	2.771E+01	684	1.652E+01	725	6.150E+00	766	1.960E+00
603	2.460E+01	644	2.761E+01	685	1.618E+01	726	6.027E+00	767	1.912E+00
604	2.481E+01	645	2.740E+01	686	1.589E+01	727	5.829E+00	768	1.880E+00
605	2.504E+01	646	2.730E+01	687	1.548E+01	728	5.697E+00	769	1.795E+00
606	2.523E+01	647	2.713E+01	688	1.521E+01	729	5.538E+00	770	1.748E+00
607	2.549E+01	648	2.696E+01	689	1.492E+01	730	5.372E+00	771	1.702E+00
608	2.566E+01	649	2.684E+01	690	1.457E+01	731	5.243E+00	772	1.646E+00
609	2.587E+01	650	2.656E+01	691	1.426E+01	732	5.085E+00	773	1.622E+00
610	2.608E+01	651	2.639E+01	692	1.399E+01	733	4.953E+00	774	1.561E+00
611	2.632E+01	652	2.620E+01	693	1.365E+01	734	4.814E+00	775	1.525E+00
612	2.651E+01	653	2.594E+01	694	1.338E+01	735	4.678E+00	776	1.471E+00
613	2.669E+01	654	2.571E+01	695	1.305E+01	736	4.556E+00	777	1.441E+00
614	2.684E+01	655	2.552E+01	696	1.271E+01	737	4.411E+00	778	1.424E+00
615	2.697E+01	656	2.524E+01	697	1.250E+01	738	4.308E+00	779	1.427E+00
616	2.715E+01	657	2.503E+01	698	1.215E+01	739	4.187E+00	780	1.429E+00
617	2.738E+01	658	2.471E+01	699	1.191E+01	740	4.054E+00		
618	2.750E+01	659	2.449E+01	700	1.165E+01	741	3.943E+00		
619	2.762E+01	660	2.422E+01	701	1.135E+01	742	3.834E+00		
620	2.772E+01	661	2.389E+01	702	1.109E+01	743	3.721E+00		
621	2.787E+01	662	2.357E+01	703	1.084E+01	744	3.638E+00		
622	2.798E+01	663	2.333E+01	704	1.057E+01	745	3.517E+00		
623	2.808E+01	664	2.306E+01	705	1.031E+01	746	3.431E+00		
624	2.817E+01	665	2.270E+01	706	1.010E+01	747	3.335E+00		
625	2.822E+01	666	2.239E+01	707	9.795E+00	748	3.218E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



Model: 15.5PAR38DIM/930NF25/SL

[Goniophotometer System]

The Stabilization time: **30 minutes**

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

Test orientation: **Base Up**

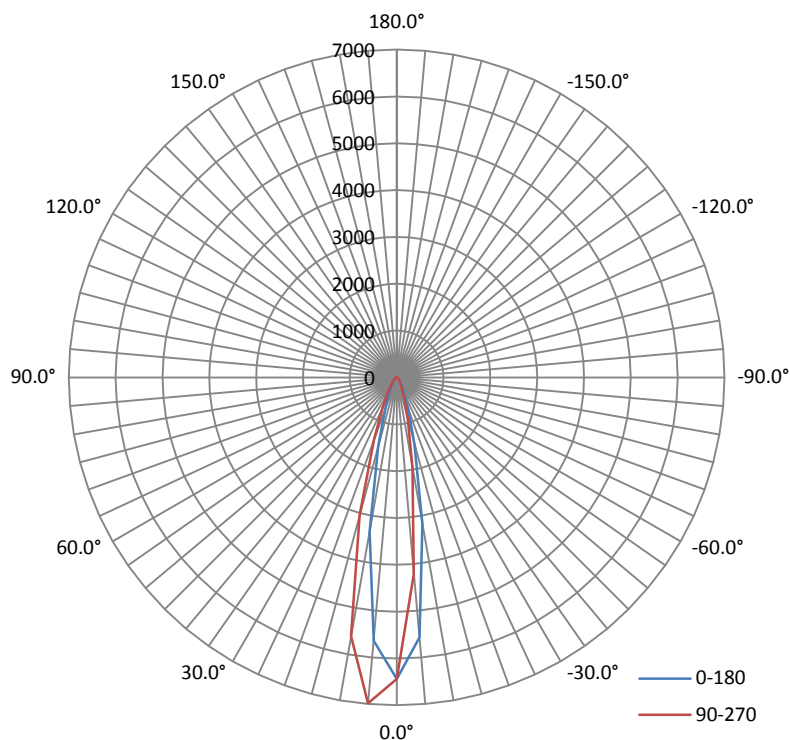
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.08	60	0.1333	15.338	0.9584

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I _{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
1396.47	91.05	7052.0	0.34	0.24

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I _{max}):	20.2	20.3	20.2	20.2	20.2
Field Angle (10% I _{max}):	41.7	41.8	41.7	41.5	41.7

Luminous Intensity (cd) Distribution Data

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	6436	6436	6436	6436	6436	6436	6436	6436
5.0°	5646	5867	6081	6942	6987	6876	6684	6419
10.0°	3345	3721	4069	5553	5606	5374	4997	4494
15.0°	1516	1721	1934	3020	3037	2823	2528	2196
20.0°	717	813	902	1379	1402	1308	1179	1031
25.0°	400	450	491	691	702	654	595	543
30.0°	242	266	284	392	392	369	338	303
35.0°	152	163	173	233	231	215	192	180
40.0°	101	109	113	141	143	129	118	116
45.0°	67	71	74	97	97	89	84	80
50.0°	48	51	52	64	64	61	58	55
55.0°	35	36	37	47	47	45	42	40
60.0°	27	28	29	35	35	34	32	30
65.0°	21	22	22	27	27	26	25	23
70.0°	16	17	17	21	21	20	19	18
75.0°	10	11	12	15	15	14	14	13
80.0°	6	6	7	9	9	9	9	8
85.0°	2	3	3	5	5	5	4	4
90.0°	0	0	1	2	2	1	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°	1	1	1	1	1	1	1	1
145.0°	2	2	2	2	2	2	2	2
150.0°	3	3	3	3	3	3	3	3
155.0°	4	4	4	4	4	4	4	4
160.0°	5	4	4	4	4	4	4	4
165.0°	4	4	4	5	5	5	5	4
170.0°	4	4	4	4	4	4	4	4
175.0°	3	3	3	4	3	3	3	3
180.0°	2	2	2	2	2	2	2	2

Luminous Intensity (cd) Distribution Data (cont.)

$\begin{matrix} C \\ \backslash \\ \gamma \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	6436	6436	6436	6436	6436	6436	6436	6436
5.0°	5568	5291	5105	4237	4222	4321	4509	4789
10.0°	3175	2876	2668	1962	1958	2009	2145	2377
15.0°	1473	1310	1236	914	899	909	969	1099
20.0°	724	653	597	480	470	477	502	542
25.0°	401	369	341	281	274	278	293	313
30.0°	237	221	207	173	171	171	176	191
35.0°	149	143	133	111	111	111	115	127
40.0°	98	90	85	74	74	75	78	82
45.0°	65	61	59	53	53	54	56	58
50.0°	47	45	43	40	40	40	41	41
55.0°	35	34	32	31	31	31	32	32
60.0°	27	26	25	24	24	24	25	25
65.0°	20	20	19	18	18	18	19	19
70.0°	15	15	14	12	12	12	13	13
75.0°	10	9	9	7	7	7	8	8
80.0°	6	5	5	3	3	3	4	4
85.0°	2	2	2	1	1	1	1	1
90.0°	0	0	0	0	0	0	0	0
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°	1	1	1	1	1	1	1	1
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	2	2	1	1	1
180.0°	2	2	2	3	3	2	2	2

Zonal Lumen Density Measurement

Deg	Flux (lm)	%	Deg	Flux (lm)	%
0-5	143.8	10.30	0-5	143.8	10.30
5-10	321.0	22.98	0-10	464.8	33.28
10-15	294.7	21.11	0-15	759.5	54.39
15-20	196.1	14.04	0-20	955.6	68.43
20-25	125.9	9.02	0-25	1081.5	77.45
25-30	85.7	6.13	0-30	1167.2	83.58
30-35	59.7	4.27	0-35	1226.9	87.85
35-40	42.5	3.05	0-40	1269.4	90.90
40-45	31.2	2.23	0-45	1300.6	93.13
45-50	23.7	1.70	0-50	1324.2	94.83
50-55	18.5	1.32	0-55	1342.7	96.15
55-60	14.8	1.06	0-60	1357.5	97.21
60-65	12.0	0.86	0-65	1369.5	98.07
65-70	9.5	0.67	0-70	1378.9	98.74
70-75	6.9	0.50	0-75	1385.8	99.24
75-80	4.4	0.31	0-80	1390.2	99.55
80-85	2.3	0.17	0-85	1392.5	99.72
85-90	0.7	0.05	0-90	1393.2	99.77
90-95	0.1	0.00	0-95	1393.3	99.77
95-100	0.0	0.01	0-100	1393.3	99.78
100-105	0.0	0.00	0-105	1393.3	99.78
105-110	0.0	0.00	0-110	1393.3	99.78
110-115	0.0	0.00	0-115	1393.4	99.78
115-120	0.0	0.00	0-120	1393.4	99.78
120-125	0.0	0.00	0-125	1393.4	99.78
125-130	0.0	0.00	0-130	1393.4	99.78
130-135	0.1	0.01	0-135	1393.5	99.79
135-140	0.1	0.01	0-140	1393.6	99.80
140-145	0.3	0.02	0-145	1393.9	99.82
145-150	0.4	0.03	0-150	1394.4	99.85
150-155	0.5	0.04	0-155	1394.9	99.89
155-160	0.6	0.04	0-160	1395.5	99.93
160-165	0.5	0.03	0-165	1395.9	99.96
165-170	0.3	0.02	0-170	1396.2	99.98
170-175	0.2	0.02	0-175	1396.4	100.00
175-180	0.1	0.00	0-180	1396.5	100.00

[Additional Test]

Model: 15.5PAR38DIM/930NF25/SL

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120.0	60	15.93%

Model: 15.5PAR38DIM/930FL40/B/SL+SL25D

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120.0	60	16.24%

6. Product Photo

Photo for 15.5PAR38DIM/930NF25/SL



Photo for 15.5PAR38DIM/930FL40/B/SL+SL25D



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*****