

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/930FL40/SL

Report Type:	Electrical and Photometric tests including: Luminous Flux, Chromaticity, Luminous Intensity Distribution, THD
Reviewed By:	Hill Liu 
Report Number:	KS2230727-43674E-EE-1
Test Date:	2023-07-28 to 2023-08-09
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/930FL40/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: AC 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/930FL40/SL	15.5PAR38DIM/930FL40/B/SL	Finishing Color	The finishing color of model 15.5PAR38DIM/930FL40/SL is white; The finishing color of model 15.5PAR38DIM/930FL40/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
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

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
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_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

Model: 15.5PAR38DIM/930FL40/SL

[Integrating Sphere System]

The Stabilization time: **30 minutes**

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

Test orientation: **Base Up**

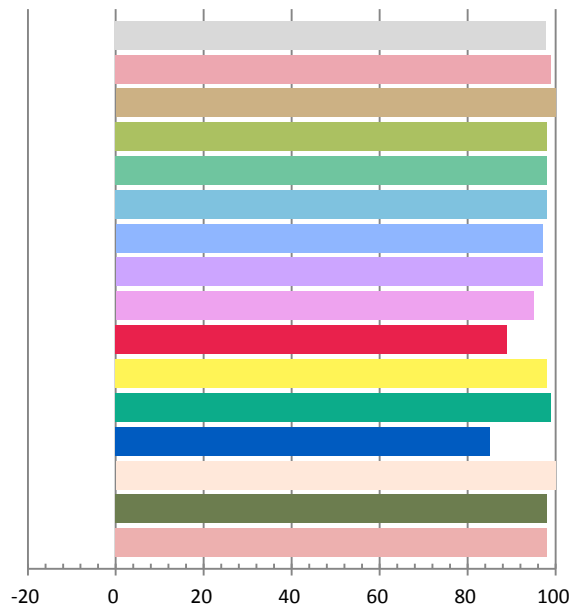
Photometric and Electrical Measurement Result

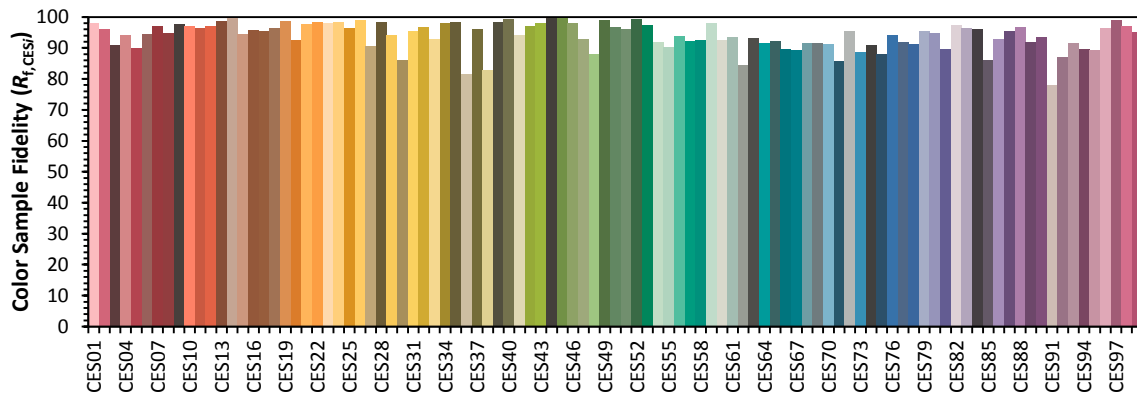
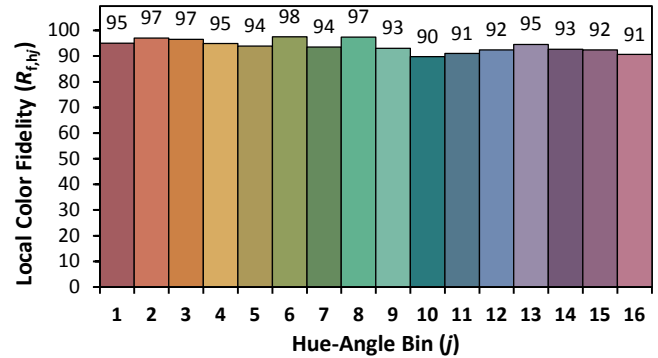
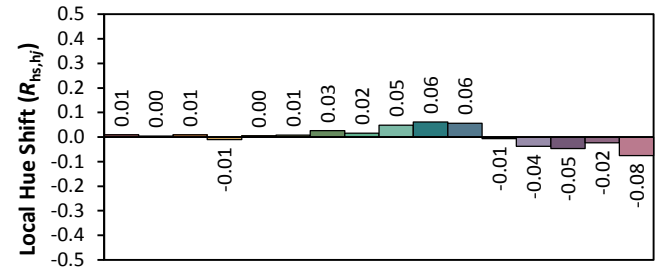
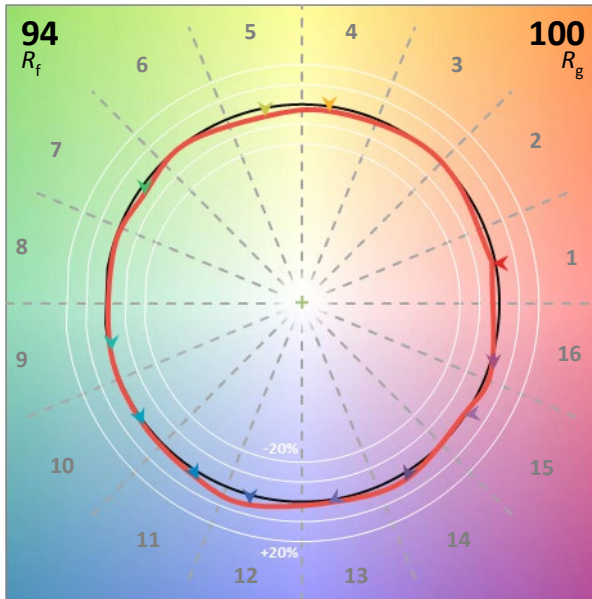
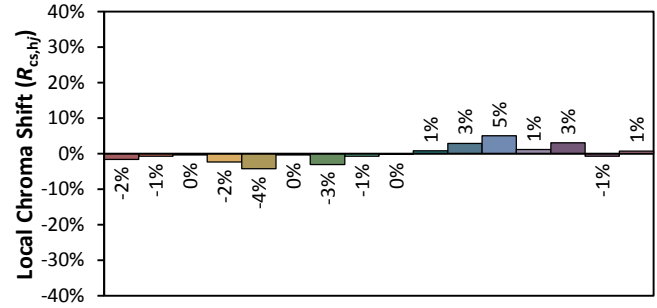
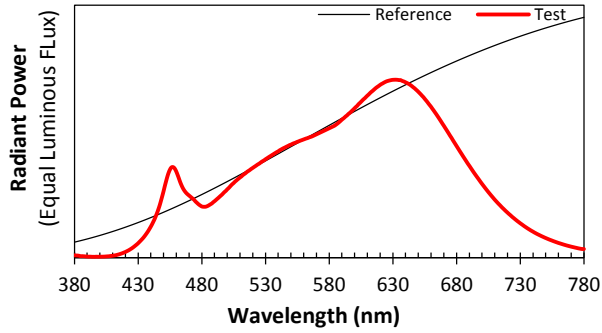
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1331	15.41	0.9645	1446.7	93.88

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
5.3985	3065	-0.000952	0.4311	0.3997	0.2487	0.5188

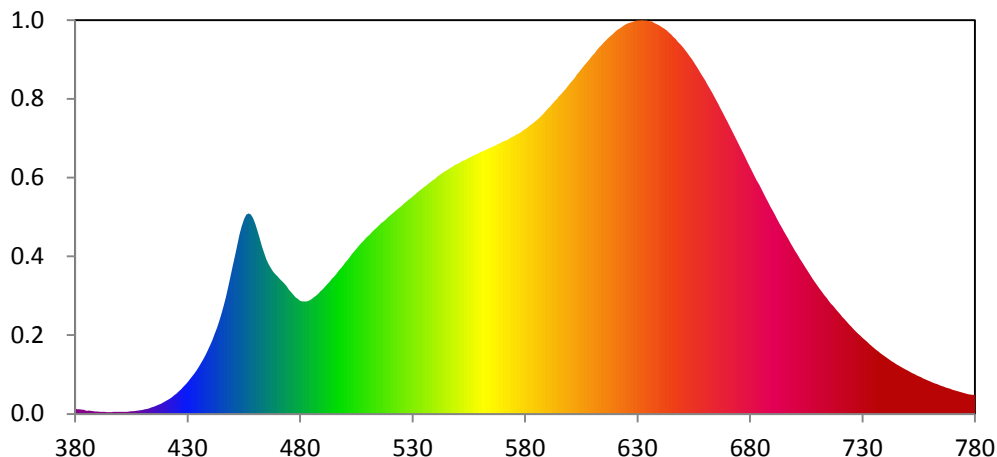
Color Rendering Index

Ra			
97.8			
R1	R2	R3	R4
99	100	98	98
R5	R6	R7	R8
98	97	97	95
R9	R10	R11	R12
89	98	99	85
R13	R14	R15	
100	98	98	





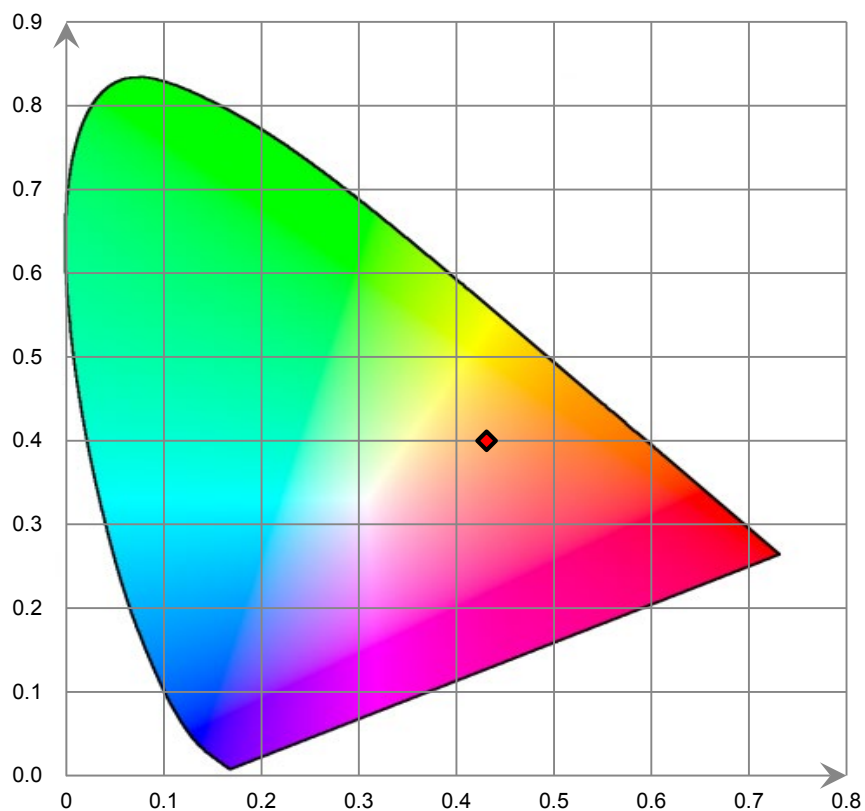
Relative Spectral Power Distribution



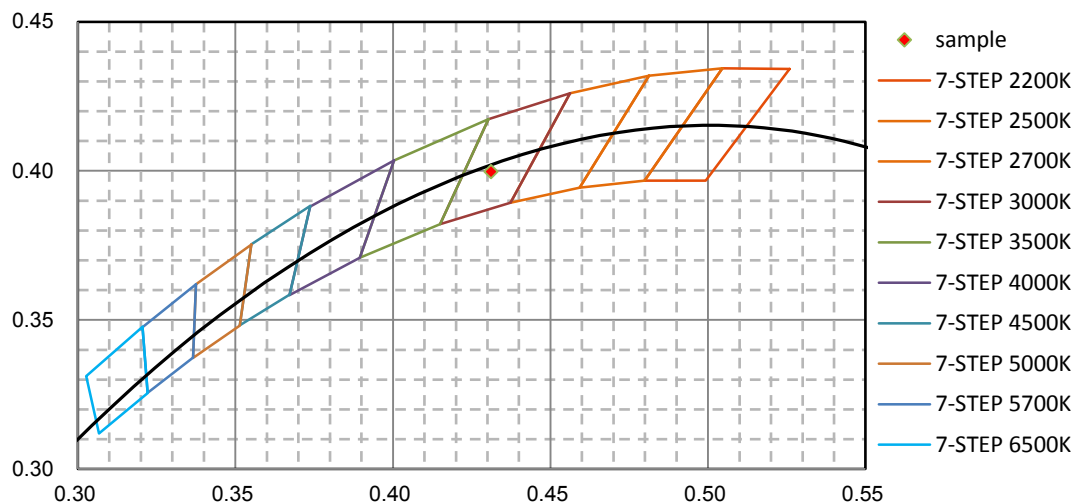
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	3.928E-01	421	1.057E+00	462	1.331E+01	503	1.212E+01	544	1.835E+01
381	3.583E-01	422	1.163E+00	463	1.270E+01	504	1.233E+01	545	1.845E+01
382	3.514E-01	423	1.282E+00	464	1.218E+01	505	1.251E+01	546	1.856E+01
383	3.327E-01	424	1.413E+00	465	1.172E+01	506	1.273E+01	547	1.867E+01
384	2.922E-01	425	1.550E+00	466	1.135E+01	507	1.291E+01	548	1.877E+01
385	2.401E-01	426	1.703E+00	467	1.105E+01	508	1.310E+01	549	1.889E+01
386	2.473E-01	427	1.866E+00	468	1.080E+01	509	1.327E+01	550	1.896E+01
387	2.330E-01	428	2.041E+00	469	1.060E+01	510	1.345E+01	551	1.907E+01
388	2.182E-01	429	2.217E+00	470	1.042E+01	511	1.360E+01	552	1.917E+01
389	1.912E-01	430	2.408E+00	471	1.024E+01	512	1.380E+01	553	1.924E+01
390	1.804E-01	431	2.625E+00	472	1.006E+01	513	1.397E+01	554	1.933E+01
391	1.583E-01	432	2.844E+00	473	9.879E+00	514	1.411E+01	555	1.943E+01
392	1.626E-01	433	3.069E+00	474	9.692E+00	515	1.429E+01	556	1.950E+01
393	1.548E-01	434	3.307E+00	475	9.433E+00	516	1.446E+01	557	1.960E+01
394	1.369E-01	435	3.571E+00	476	9.236E+00	517	1.459E+01	558	1.967E+01
395	1.392E-01	436	3.861E+00	477	9.035E+00	518	1.475E+01	559	1.975E+01
396	1.327E-01	437	4.161E+00	478	8.857E+00	519	1.491E+01	560	1.983E+01
397	1.547E-01	438	4.485E+00	479	8.713E+00	520	1.505E+01	561	1.991E+01
398	1.457E-01	439	4.841E+00	480	8.584E+00	521	1.520E+01	562	1.999E+01
399	1.470E-01	440	5.209E+00	481	8.537E+00	522	1.534E+01	563	2.005E+01
400	1.519E-01	441	5.604E+00	482	8.529E+00	523	1.549E+01	564	2.014E+01
401	1.587E-01	442	6.042E+00	483	8.539E+00	524	1.564E+01	565	2.022E+01
402	1.590E-01	443	6.484E+00	484	8.610E+00	525	1.576E+01	566	2.029E+01
403	1.670E-01	444	7.009E+00	485	8.708E+00	526	1.592E+01	567	2.038E+01
404	1.786E-01	445	7.552E+00	486	8.838E+00	527	1.608E+01	568	2.048E+01
405	1.980E-01	446	8.158E+00	487	8.969E+00	528	1.621E+01	569	2.054E+01
406	2.149E-01	447	8.810E+00	488	9.105E+00	529	1.634E+01	570	2.063E+01
407	2.283E-01	448	9.566E+00	489	9.301E+00	530	1.650E+01	571	2.071E+01
408	2.592E-01	449	1.034E+01	490	9.464E+00	531	1.664E+01	572	2.077E+01
409	2.843E-01	450	1.115E+01	491	9.648E+00	532	1.678E+01	573	2.087E+01
410	3.147E-01	451	1.202E+01	492	9.838E+00	533	1.692E+01	574	2.097E+01
411	3.463E-01	452	1.283E+01	493	1.002E+01	534	1.705E+01	575	2.105E+01
412	3.850E-01	453	1.361E+01	494	1.022E+01	535	1.719E+01	576	2.117E+01
413	4.301E-01	454	1.426E+01	495	1.041E+01	536	1.732E+01	577	2.125E+01
414	4.911E-01	455	1.476E+01	496	1.060E+01	537	1.746E+01	578	2.135E+01
415	5.457E-01	456	1.510E+01	497	1.083E+01	538	1.759E+01	579	2.148E+01
416	6.178E-01	457	1.520E+01	498	1.104E+01	539	1.772E+01	580	2.159E+01
417	6.895E-01	458	1.512E+01	499	1.122E+01	540	1.783E+01	581	2.171E+01
418	7.702E-01	459	1.486E+01	500	1.146E+01	541	1.799E+01	582	2.185E+01
419	8.612E-01	460	1.443E+01	501	1.165E+01	542	1.811E+01	583	2.198E+01
420	9.492E-01	461	1.389E+01	502	1.188E+01	543	1.823E+01	584	2.211E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	2.226E+01	626	2.964E+01	667	2.312E+01	708	1.022E+01	749	3.379E+00
586	2.241E+01	627	2.970E+01	668	2.279E+01	709	9.965E+00	750	3.286E+00
587	2.258E+01	628	2.975E+01	669	2.245E+01	710	9.716E+00	751	3.195E+00
588	2.276E+01	629	2.980E+01	670	2.213E+01	711	9.481E+00	752	3.104E+00
589	2.295E+01	630	2.983E+01	671	2.179E+01	712	9.249E+00	753	3.017E+00
590	2.315E+01	631	2.984E+01	672	2.146E+01	713	9.020E+00	754	2.934E+00
591	2.332E+01	632	2.985E+01	673	2.112E+01	714	8.809E+00	755	2.854E+00
592	2.350E+01	633	2.984E+01	674	2.078E+01	715	8.579E+00	756	2.768E+00
593	2.370E+01	634	2.982E+01	675	2.043E+01	716	8.358E+00	757	2.692E+00
594	2.386E+01	635	2.978E+01	676	2.011E+01	717	8.158E+00	758	2.612E+00
595	2.408E+01	636	2.979E+01	677	1.975E+01	718	7.944E+00	759	2.538E+00
596	2.425E+01	637	2.968E+01	678	1.941E+01	719	7.743E+00	760	2.461E+00
597	2.444E+01	638	2.960E+01	679	1.907E+01	720	7.549E+00	761	2.396E+00
598	2.465E+01	639	2.952E+01	680	1.873E+01	721	7.349E+00	762	2.327E+00
599	2.485E+01	640	2.941E+01	681	1.839E+01	722	7.169E+00	763	2.261E+00
600	2.507E+01	641	2.931E+01	682	1.805E+01	723	6.974E+00	764	2.193E+00
601	2.528E+01	642	2.919E+01	683	1.771E+01	724	6.782E+00	765	2.129E+00
602	2.547E+01	643	2.907E+01	684	1.738E+01	725	6.613E+00	766	2.066E+00
603	2.573E+01	644	2.892E+01	685	1.704E+01	726	6.431E+00	767	2.007E+00
604	2.593E+01	645	2.876E+01	686	1.671E+01	727	6.259E+00	768	1.951E+00
605	2.614E+01	646	2.858E+01	687	1.638E+01	728	6.089E+00	769	1.895E+00
606	2.636E+01	647	2.842E+01	688	1.605E+01	729	5.931E+00	770	1.840E+00
607	2.657E+01	648	2.822E+01	689	1.572E+01	730	5.764E+00	771	1.788E+00
608	2.675E+01	649	2.803E+01	690	1.542E+01	731	5.615E+00	772	1.739E+00
609	2.697E+01	650	2.782E+01	691	1.510E+01	732	5.461E+00	773	1.687E+00
610	2.718E+01	651	2.760E+01	692	1.478E+01	733	5.302E+00	774	1.640E+00
611	2.737E+01	652	2.738E+01	693	1.446E+01	734	5.156E+00	775	1.589E+00
612	2.759E+01	653	2.714E+01	694	1.415E+01	735	5.013E+00	776	1.542E+00
613	2.779E+01	654	2.692E+01	695	1.385E+01	736	4.871E+00	777	1.502E+00
614	2.796E+01	655	2.665E+01	696	1.355E+01	737	4.739E+00	778	1.460E+00
615	2.815E+01	656	2.639E+01	697	1.326E+01	738	4.603E+00	779	1.445E+00
616	2.834E+01	657	2.613E+01	698	1.296E+01	739	4.476E+00	780	1.448E+00
617	2.852E+01	658	2.584E+01	699	1.266E+01	740	4.357E+00		
618	2.867E+01	659	2.557E+01	700	1.237E+01	741	4.227E+00		
619	2.882E+01	660	2.530E+01	701	1.209E+01	742	4.112E+00		
620	2.898E+01	661	2.499E+01	702	1.181E+01	743	3.995E+00		
621	2.912E+01	662	2.470E+01	703	1.153E+01	744	3.888E+00		
622	2.923E+01	663	2.439E+01	704	1.126E+01	745	3.783E+00		
623	2.936E+01	664	2.409E+01	705	1.099E+01	746	3.677E+00		
624	2.947E+01	665	2.377E+01	706	1.073E+01	747	3.575E+00		
625	2.957E+01	666	2.345E+01	707	1.047E+01	748	3.478E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



Model: 15.5PAR38DIM/930FL40/B/SL

[Integrating Sphere System]

The Stabilization time: **30 minutes**

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

Test orientation: **Base up**

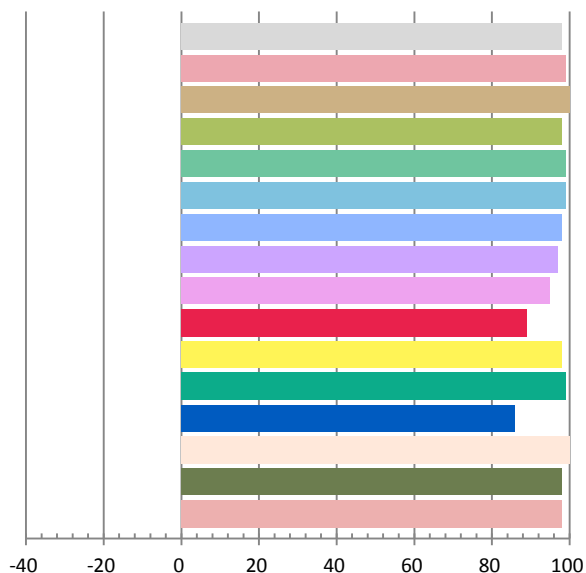
Photometric and Electrical Measurement Result

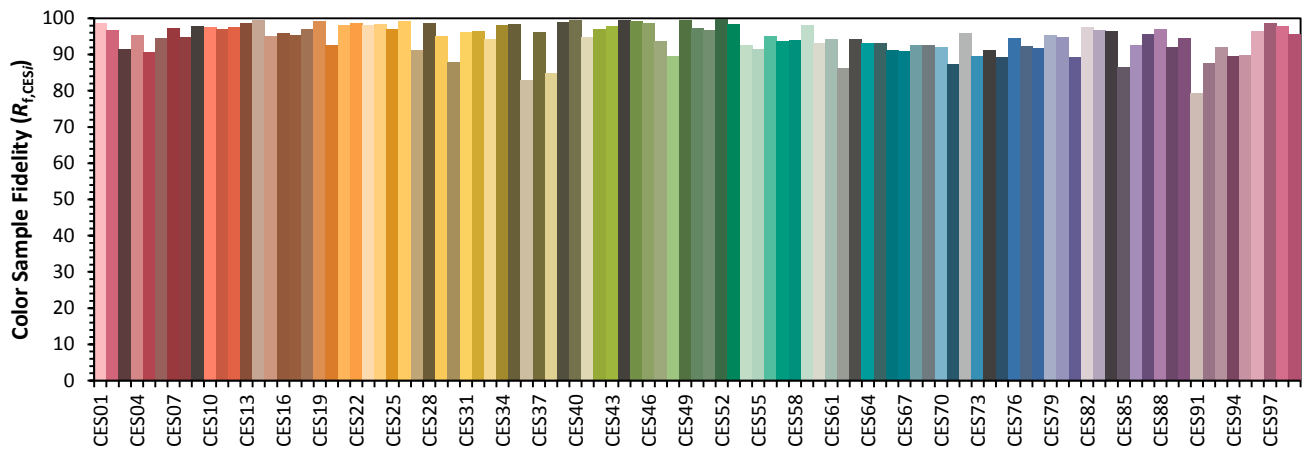
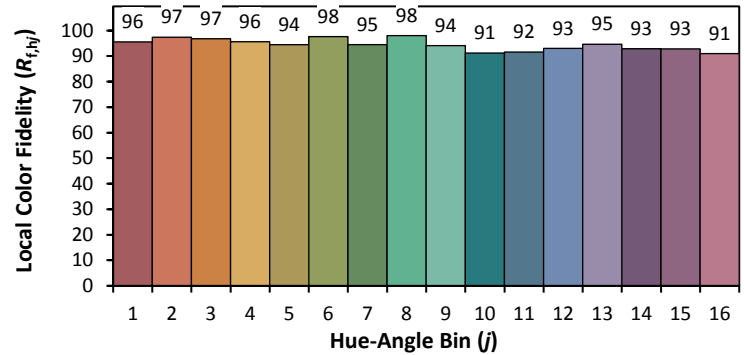
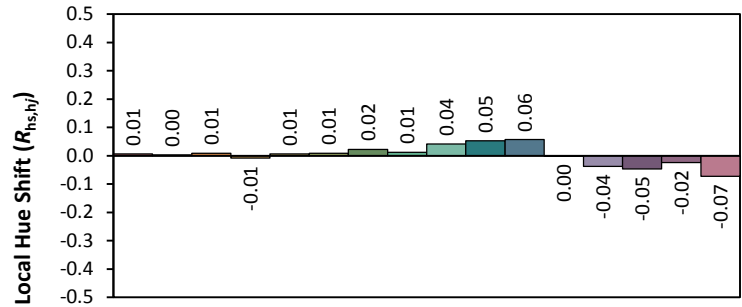
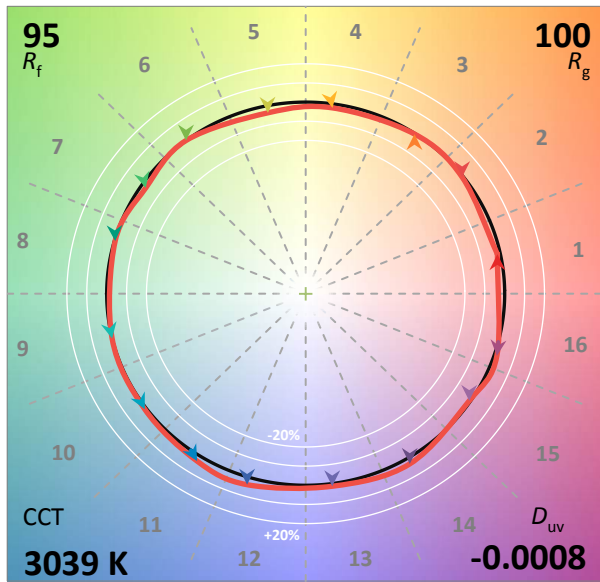
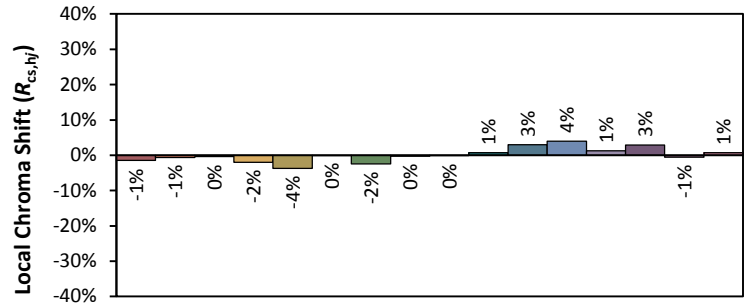
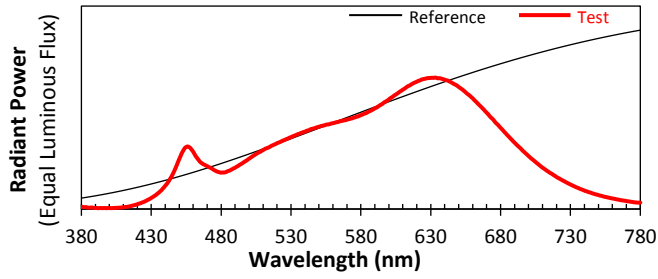
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1323	15.37	0.9676	1377.8	89.66

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
5.131	3039	-0.000737	0.4331	0.4009	0.2495	0.5196

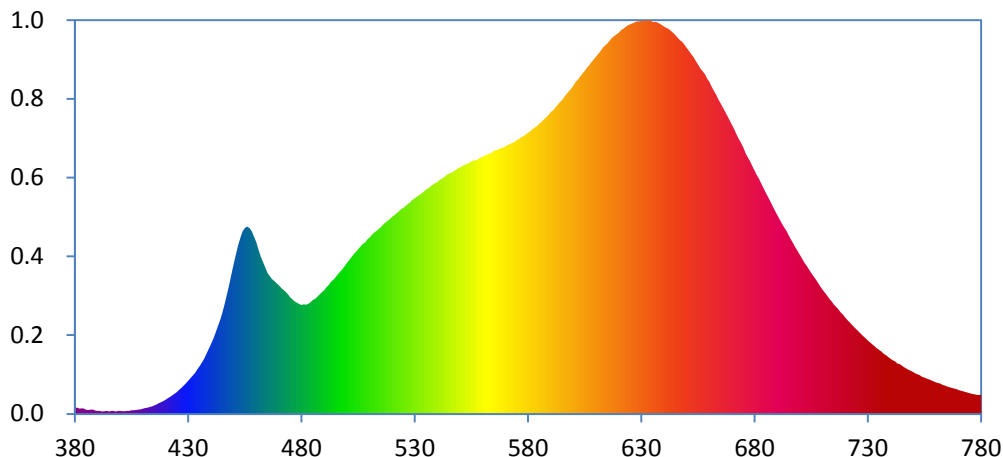
Color Rendering Index

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





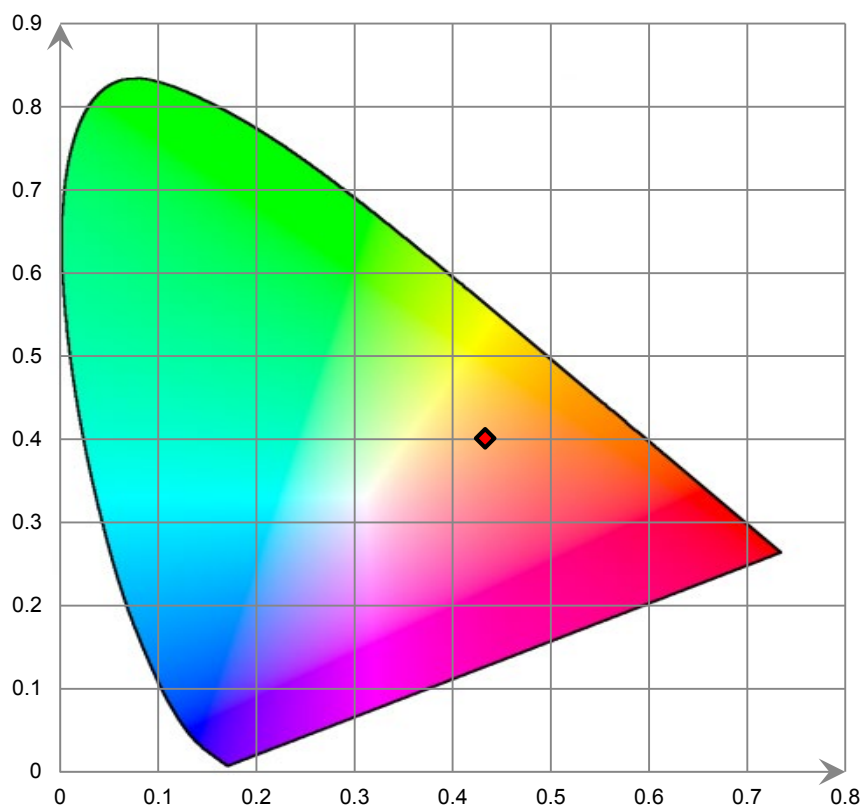
Relative Spectral Power Distribution



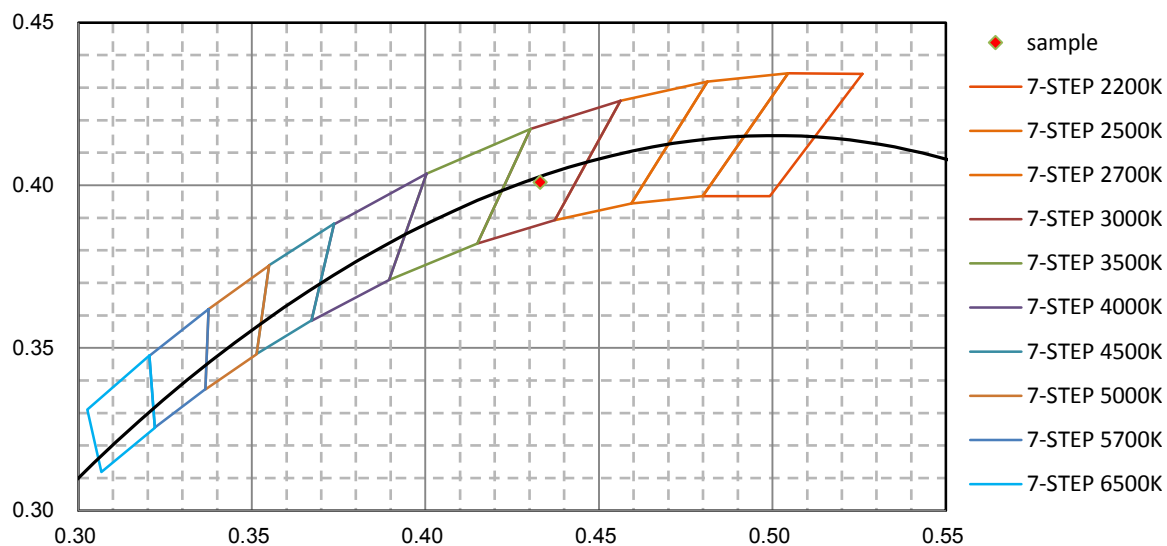
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	4.609E-01	421	1.164E+00	462	1.148E+01	503	1.164E+01	544	1.744E+01
381	4.565E-01	422	1.240E+00	463	1.107E+01	504	1.182E+01	545	1.753E+01
382	3.906E-01	423	1.369E+00	464	1.067E+01	505	1.202E+01	546	1.760E+01
383	4.099E-01	424	1.483E+00	465	1.029E+01	506	1.221E+01	547	1.769E+01
384	3.756E-01	425	1.608E+00	466	1.006E+01	507	1.240E+01	548	1.781E+01
385	2.958E-01	426	1.756E+00	467	9.832E+00	508	1.251E+01	549	1.791E+01
386	2.997E-01	427	1.913E+00	468	9.699E+00	509	1.273E+01	550	1.799E+01
387	3.234E-01	428	2.077E+00	469	9.523E+00	510	1.288E+01	551	1.808E+01
388	3.130E-01	429	2.228E+00	470	9.382E+00	511	1.307E+01	552	1.819E+01
389	2.350E-01	430	2.425E+00	471	9.197E+00	512	1.324E+01	553	1.823E+01
390	2.169E-01	431	2.601E+00	472	9.060E+00	513	1.334E+01	554	1.832E+01
391	2.264E-01	432	2.812E+00	473	8.901E+00	514	1.347E+01	555	1.842E+01
392	1.811E-01	433	3.000E+00	474	8.719E+00	515	1.362E+01	556	1.849E+01
393	1.996E-01	434	3.256E+00	475	8.505E+00	516	1.382E+01	557	1.851E+01
394	2.318E-01	435	3.493E+00	476	8.356E+00	517	1.395E+01	558	1.860E+01
395	1.861E-01	436	3.755E+00	477	8.205E+00	518	1.409E+01	559	1.872E+01
396	2.192E-01	437	4.036E+00	478	8.103E+00	519	1.422E+01	560	1.876E+01
397	2.113E-01	438	4.367E+00	479	8.016E+00	520	1.439E+01	561	1.884E+01
398	1.805E-01	439	4.717E+00	480	7.944E+00	521	1.451E+01	562	1.894E+01
399	2.247E-01	440	5.086E+00	481	7.987E+00	522	1.464E+01	563	1.900E+01
400	2.128E-01	441	5.443E+00	482	7.981E+00	523	1.478E+01	564	1.906E+01
401	1.963E-01	442	5.880E+00	483	8.042E+00	524	1.494E+01	565	1.920E+01
402	1.986E-01	443	6.347E+00	484	8.160E+00	525	1.505E+01	566	1.924E+01
403	2.219E-01	444	6.849E+00	485	8.316E+00	526	1.519E+01	567	1.930E+01
404	2.339E-01	445	7.395E+00	486	8.391E+00	527	1.533E+01	568	1.939E+01
405	2.610E-01	446	8.023E+00	487	8.569E+00	528	1.544E+01	569	1.943E+01
406	2.614E-01	447	8.690E+00	488	8.721E+00	529	1.562E+01	570	1.953E+01
407	2.895E-01	448	9.402E+00	489	8.893E+00	530	1.571E+01	571	1.962E+01
408	3.032E-01	449	1.017E+01	490	9.032E+00	531	1.587E+01	572	1.969E+01
409	3.407E-01	450	1.091E+01	491	9.243E+00	532	1.599E+01	573	1.979E+01
410	3.765E-01	451	1.161E+01	492	9.395E+00	533	1.611E+01	574	1.984E+01
411	4.258E-01	452	1.230E+01	493	9.622E+00	534	1.624E+01	575	2.000E+01
412	4.652E-01	453	1.283E+01	494	9.790E+00	535	1.638E+01	576	2.005E+01
413	4.968E-01	454	1.332E+01	495	9.972E+00	536	1.646E+01	577	2.020E+01
414	5.486E-01	455	1.356E+01	496	1.019E+01	537	1.662E+01	578	2.025E+01
415	6.284E-01	456	1.367E+01	497	1.038E+01	538	1.672E+01	579	2.040E+01
416	6.921E-01	457	1.355E+01	498	1.058E+01	539	1.684E+01	580	2.052E+01
417	7.853E-01	458	1.333E+01	499	1.078E+01	540	1.691E+01	581	2.064E+01
418	8.557E-01	459	1.293E+01	500	1.101E+01	541	1.708E+01	582	2.079E+01
419	9.484E-01	460	1.253E+01	501	1.121E+01	542	1.718E+01	583	2.090E+01
420	1.038E+00	461	1.198E+01	502	1.143E+01	543	1.726E+01	584	2.101E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	2.120E+01	626	2.849E+01	667	2.204E+01	708	9.532E+00	749	3.146E+00
586	2.134E+01	627	2.857E+01	668	2.174E+01	709	9.282E+00	750	3.055E+00
587	2.148E+01	628	2.864E+01	669	2.138E+01	710	9.046E+00	751	2.952E+00
588	2.166E+01	629	2.864E+01	670	2.107E+01	711	8.845E+00	752	2.894E+00
589	2.180E+01	630	2.867E+01	671	2.075E+01	712	8.625E+00	753	2.805E+00
590	2.204E+01	631	2.870E+01	672	2.038E+01	713	8.391E+00	754	2.701E+00
591	2.215E+01	632	2.868E+01	673	2.004E+01	714	8.211E+00	755	2.654E+00
592	2.233E+01	633	2.873E+01	674	1.976E+01	715	7.981E+00	756	2.570E+00
593	2.255E+01	634	2.870E+01	675	1.945E+01	716	7.805E+00	757	2.511E+00
594	2.276E+01	635	2.858E+01	676	1.903E+01	717	7.626E+00	758	2.440E+00
595	2.291E+01	636	2.861E+01	677	1.871E+01	718	7.408E+00	759	2.377E+00
596	2.315E+01	637	2.857E+01	678	1.843E+01	719	7.219E+00	760	2.311E+00
597	2.337E+01	638	2.846E+01	679	1.809E+01	720	7.011E+00	761	2.255E+00
598	2.354E+01	639	2.838E+01	680	1.775E+01	721	6.824E+00	762	2.199E+00
599	2.373E+01	640	2.827E+01	681	1.744E+01	722	6.673E+00	763	2.114E+00
600	2.396E+01	641	2.817E+01	682	1.710E+01	723	6.488E+00	764	2.074E+00
601	2.422E+01	642	2.810E+01	683	1.675E+01	724	6.322E+00	765	2.007E+00
602	2.439E+01	643	2.795E+01	684	1.643E+01	725	6.159E+00	766	1.939E+00
603	2.461E+01	644	2.780E+01	685	1.609E+01	726	5.994E+00	767	1.895E+00
604	2.484E+01	645	2.764E+01	686	1.579E+01	727	5.824E+00	768	1.850E+00
605	2.503E+01	646	2.744E+01	687	1.546E+01	728	5.666E+00	769	1.805E+00
606	2.524E+01	647	2.727E+01	688	1.514E+01	729	5.512E+00	770	1.749E+00
607	2.546E+01	648	2.714E+01	689	1.481E+01	730	5.356E+00	771	1.688E+00
608	2.569E+01	649	2.694E+01	690	1.451E+01	731	5.219E+00	772	1.657E+00
609	2.587E+01	650	2.670E+01	691	1.420E+01	732	5.061E+00	773	1.597E+00
610	2.609E+01	651	2.648E+01	692	1.390E+01	733	4.922E+00	774	1.551E+00
611	2.627E+01	652	2.626E+01	693	1.362E+01	734	4.777E+00	775	1.501E+00
612	2.649E+01	653	2.604E+01	694	1.334E+01	735	4.666E+00	776	1.459E+00
613	2.673E+01	654	2.578E+01	695	1.303E+01	736	4.534E+00	777	1.430E+00
614	2.690E+01	655	2.551E+01	696	1.270E+01	737	4.383E+00	778	1.395E+00
615	2.703E+01	656	2.524E+01	697	1.244E+01	738	4.279E+00	779	1.397E+00
616	2.723E+01	657	2.500E+01	698	1.214E+01	739	4.155E+00	780	1.400E+00
617	2.742E+01	658	2.477E+01	699	1.188E+01	740	4.023E+00		
618	2.757E+01	659	2.447E+01	700	1.159E+01	741	3.904E+00		
619	2.771E+01	660	2.422E+01	701	1.131E+01	742	3.837E+00		
620	2.783E+01	661	2.388E+01	702	1.103E+01	743	3.688E+00		
621	2.800E+01	662	2.358E+01	703	1.080E+01	744	3.623E+00		
622	2.809E+01	663	2.328E+01	704	1.055E+01	745	3.511E+00		
623	2.824E+01	664	2.295E+01	705	1.028E+01	746	3.398E+00		
624	2.836E+01	665	2.266E+01	706	1.004E+01	747	3.312E+00		
625	2.843E+01	666	2.235E+01	707	9.784E+00	748	3.203E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



Model: 15.5PAR38DIM/930FL40/SL

[Goniophotometer System]

The Stabilization time: **30 minutes**

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

Test orientation: **Base Up**

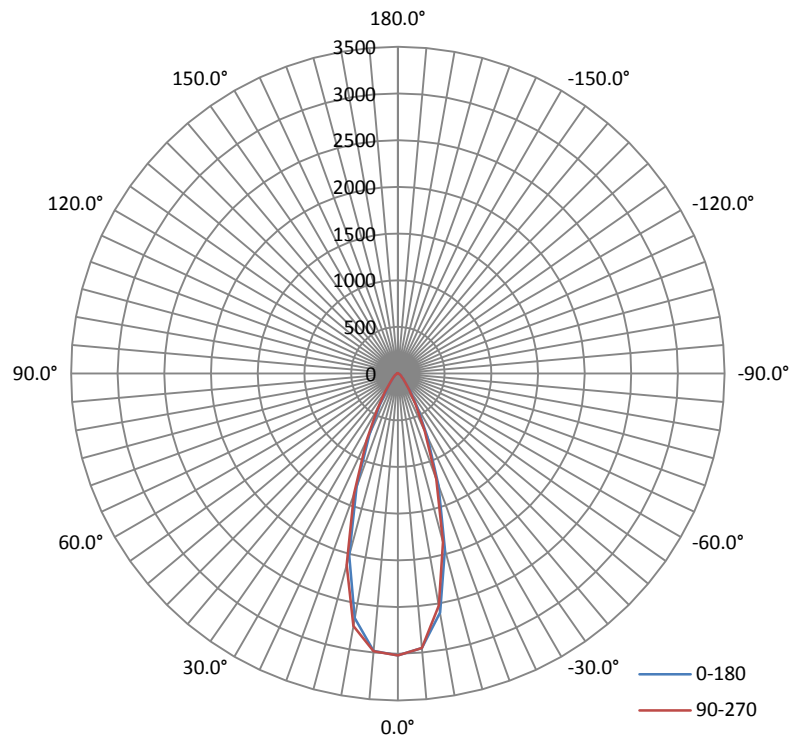
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.01	60	0.1333	15.420	0.9639

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I _{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
1446.6	93.81	3042.0	0.59	0.58

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I _{max}):	36.4	36.3	36.4	36.3	36.4
Field Angle (10% I _{max}):	64.4	64.7	64.9	64.1	64.5

Luminous Intensity (cd) Distribution Data

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	3019	3019	3019	3019	3019	3019	3019	3019
5.0°	2982	2990	2981	2994	2986	2983	2971	2936
10.0°	2657	2700	2736	2755	2744	2723	2656	2579
15.0°	2017	2083	2118	2143	2120	2080	2006	1913
20.0°	1289	1330	1377	1385	1369	1332	1267	1214
25.0°	722	760	783	795	792	760	723	699
30.0°	384	409	423	438	438	419	395	383
35.0°	201	218	232	244	245	235	218	209
40.0°	115	126	140	144	140	133	123	116
45.0°	77	82	88	90	87	83	78	76
50.0°	56	59	61	62	60	58	56	54
55.0°	43	44	45	45	45	44	42	41
60.0°	33	34	34	35	34	34	32	32
65.0°	26	26	27	27	26	26	25	24
70.0°	19	19	20	20	19	19	18	18
75.0°	12	13	13	13	13	13	12	11
80.0°	7	7	8	8	8	7	7	6
85.0°	3	3	3	3	3	3	2	2
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°	1	1	1	1	1	1	1	1
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°	3	3	3	3	3	3	3	3
160.0°	4	4	4	4	4	4	4	4
165.0°	4	4	4	4	4	4	4	4
170.0°	3	3	3	3	3	3	3	3
175.0°	3	3	3	3	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°	3019	3019	3019	3019	3019	3019	3019	3019
5.0°	2950	2926	2914	2934	2949	2979	2999	3005
10.0°	2599	2538	2507	2501	2523	2567	2612	2665
15.0°	1951	1887	1843	1852	1870	1926	1980	2032
20.0°	1274	1221	1193	1198	1204	1236	1276	1326
25.0°	744	708	694	688	679	701	723	751
30.0°	411	398	388	386	377	379	385	396
35.0°	226	217	216	215	208	204	205	207
40.0°	125	124	126	127	122	119	117	118
45.0°	77	77	78	77	77	77	77	77
50.0°	55	54	55	55	54	55	55	56
55.0°	42	41	41	41	42	43	42	43
60.0°	33	32	32	32	32	33	33	33
65.0°	25	24	24	24	24	25	26	26
70.0°	18	17	17	17	17	18	18	19
75.0°	12	11	11	11	11	11	12	13
80.0°	6	6	6	6	6	6	7	7
85.0°	2	2	2	2	2	2	2	3
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°	2	2	2	2	2	2	2	2
180.0°	2	2	2	2	2	2	2	2

Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	72.0	4.97
5-10	200.8	13.88
10-15	273.4	18.90
15-20	265.2	18.34
20-25	205.6	14.21
25-30	139.1	9.61
30-35	87.9	6.08
35-40	55.7	3.85
40-45	36.9	2.55
45-50	27.0	1.87
50-55	21.3	1.47
55-60	17.4	1.21
60-65	14.1	0.97
65-70	11.0	0.77
70-75	7.9	0.54
75-80	5.0	0.35
80-85	2.4	0.17
85-90	0.6	0.04
90-95	0.0	0.00
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	0.1	0.00
130-135	0.1	0.01
135-140	0.2	0.01
140-145	0.3	0.03
145-150	0.4	0.03
150-155	0.5	0.03
155-160	0.5	0.04
160-165	0.4	0.02
165-170	0.3	0.02
170-175	0.2	0.02
175-180	0.1	0.00

Deg	Flux (lm)	%
0-5	72.0	4.97
0-10	272.7	18.85
0-15	546.1	37.75
0-20	811.4	56.09
0-25	1017.0	70.30
0-30	1156.0	79.91
0-35	1243.9	85.99
0-40	1299.6	89.84
0-45	1336.5	92.39
0-50	1363.6	94.26
0-55	1384.9	95.73
0-60	1402.3	96.94
0-65	1416.4	97.91
0-70	1427.4	98.68
0-75	1435.4	99.22
0-80	1440.4	99.57
0-85	1442.8	99.74
0-90	1443.4	99.78
0-95	1443.5	99.78
0-100	1443.5	99.78
0-105	1443.5	99.78
0-110	1443.5	99.78
0-115	1443.5	99.78
0-120	1443.5	99.79
0-125	1443.5	99.79
0-130	1443.6	99.79
0-135	1443.7	99.80
0-140	1443.9	99.81
0-145	1444.3	99.84
0-150	1444.7	99.87
0-155	1445.2	99.90
0-160	1445.7	99.94
0-165	1446.1	99.96
0-170	1446.4	99.98
0-175	1446.6	100.00
0-180	1446.6	100.00

[Additional Test]

Model: 15.5PAR38DIM/930FL40/SL

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120.0	60	15.76%

Model: 15.5PAR38DIM/930FL40/B/SL

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120.0	60	16.00%

6. Product Photo

Photo for 15.5PAR38DIM/930FL40/SL



Photo for 15.5PAR38DIM/930FL40/B/SL



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.
7. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

*****END OF REPORT*****