

# 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: 11PAR30SNDIM/930FL40/SL**

<b>Report Type:</b>	Electrical and Photometric tests including: Luminous Flux, Chromaticity, Luminous Intensity Distribution, THD
<b>Reviewed By:</b>	Hill Liu 
<b>Report Number:</b>	KS2230727-43650E-EE-1
<b>Test Date:</b>	2023-07-28 to 2023-08-11
<b>Report Date:</b>	2023-08-25
<b>Approved by:</b>	Blake Zhang / EE Engineer
<b>Prepared By:</b>	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
<b>Test Facility:</b>	Test facility was located at No.12, Pulong East 1 <sup>st</sup> 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<sup>#</sup>

### 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: 11PAR30SNDIM/930FL40/SL  
Manufacturer: GREEN CREATIVE LTD  
Product Designation: Directional LED Lamp  
Burning Time Before Test: 0hour(For New Products)

### Rated Values:

Rated Voltage/Frequency: AC 120V 60Hz  
Rated Power: 11W  
Nominal CCT: 3000K  
Nominal Lumen Output: 990lm

### Family Declaration

The Model	Multiple Models	Variations	Detail
11PAR30SNDIM/930FL40/SL	11PAR30SNDIM/930FL40/B/SL	Finishing Color	The finishing color of model 11PAR30SNDIM/930FL40/SL is White; The finishing color of model 11PAR30SNDIM/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.

$4\pi$  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  $U=21\text{K}$  ( $K=2$ ), 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  $U=0.17\%$  of rdg, Power  $U=0.48\%$  ( $K=2$ ), 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 ( $\gamma$ ) 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: 11PAR30SNDIM/930FL40/SL

### [Integrating Sphere System]

The Stabilization time: **30 minutes**

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

Test orientation: **Base up**

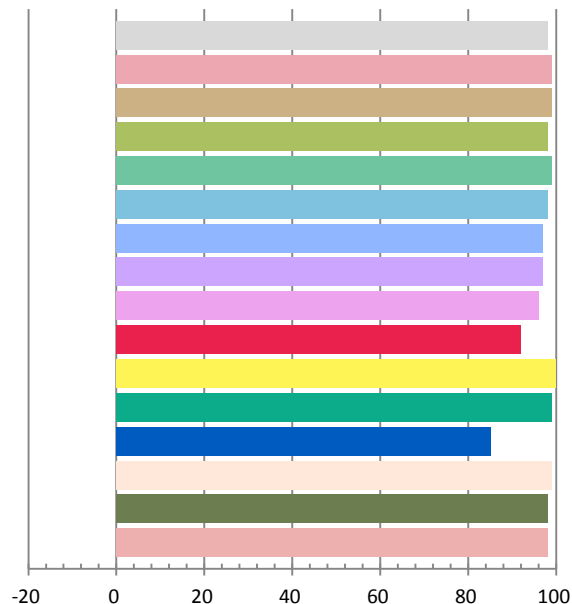
### Photometric and Electrical Measurement Result

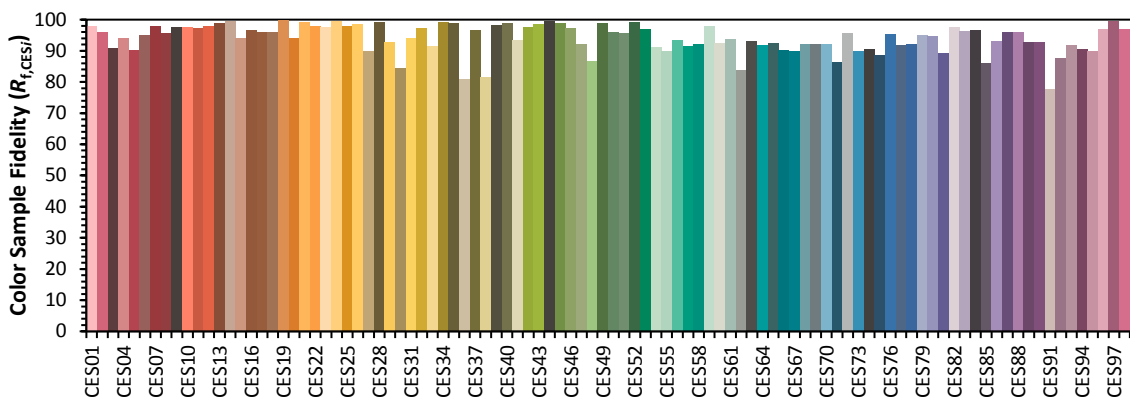
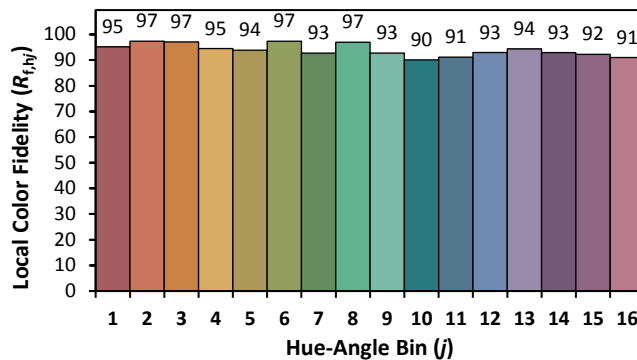
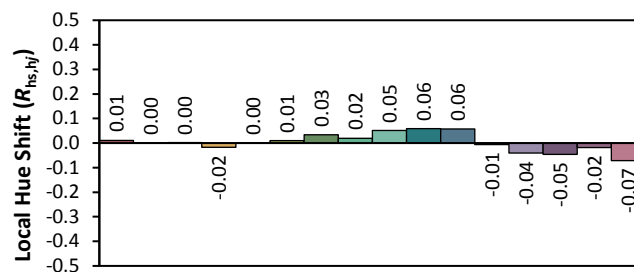
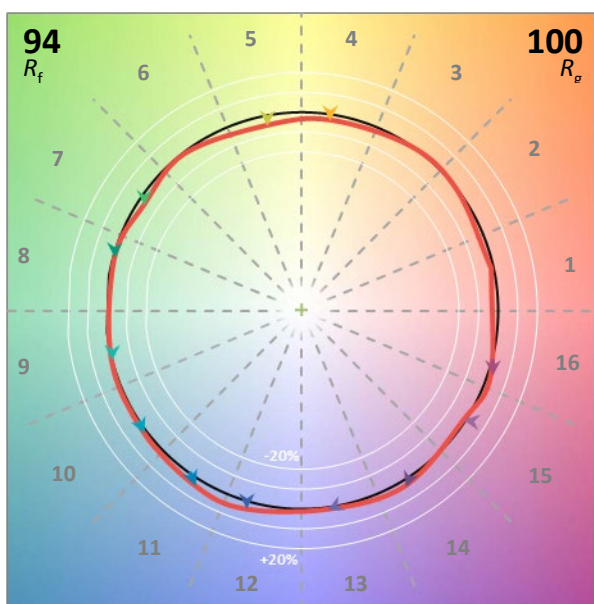
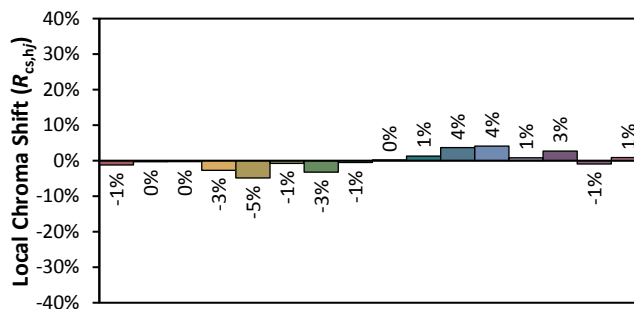
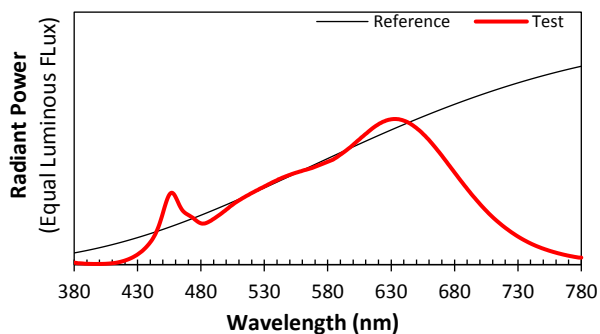
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.09139	10.47	0.9543	1000.2	95.52

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
3.7638	3022	-0.000984	0.4340	0.4006	0.2502	0.5196

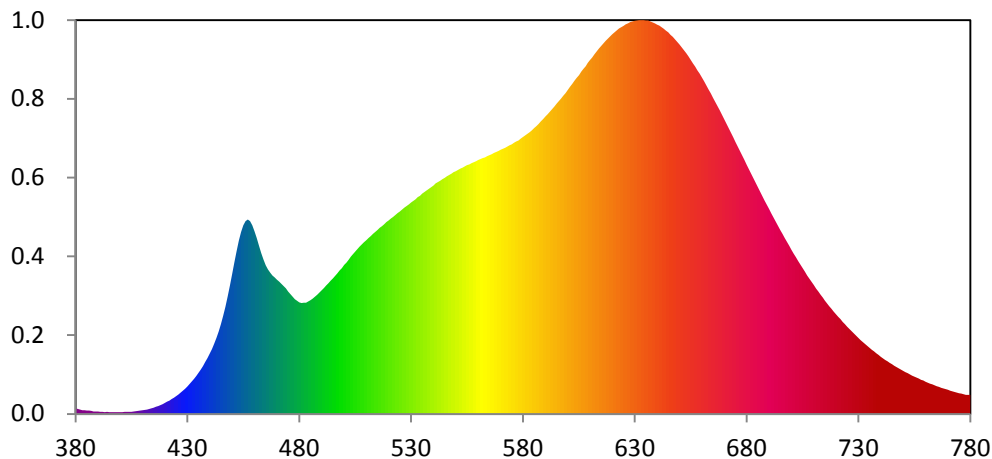
### Color Rendering Index

Ra			
98.0			
R1	R2	R3	R4
99	99	98	99
R5	R6	R7	R8
98	97	97	96
R9	R10	R11	R12
92	100	99	85
R13	R14	R15	
99	98	98	





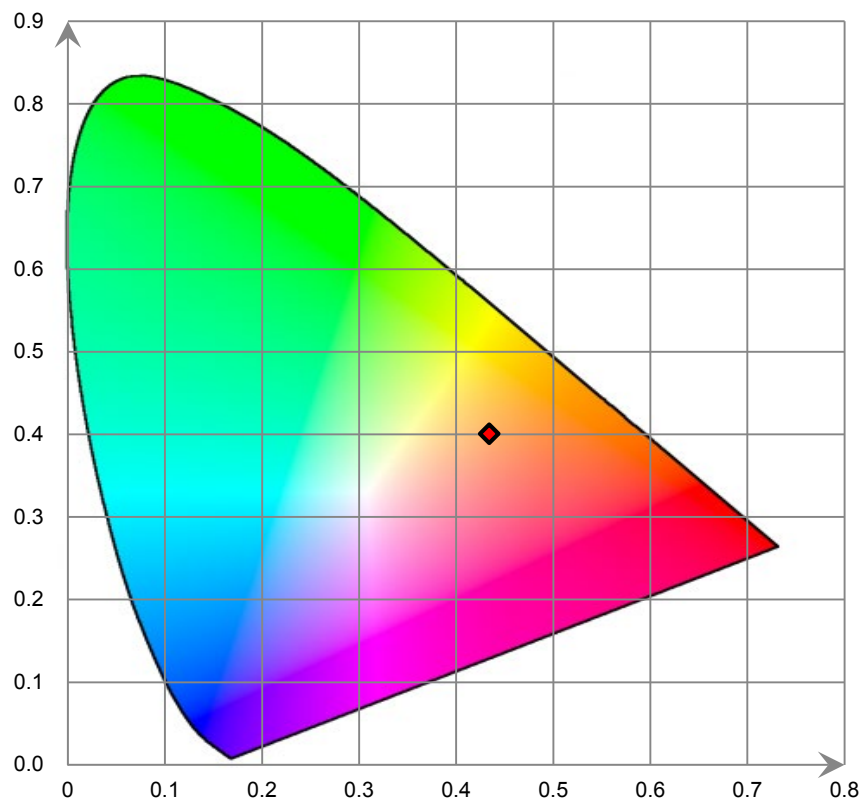
### Relative Spectral Power Distribution



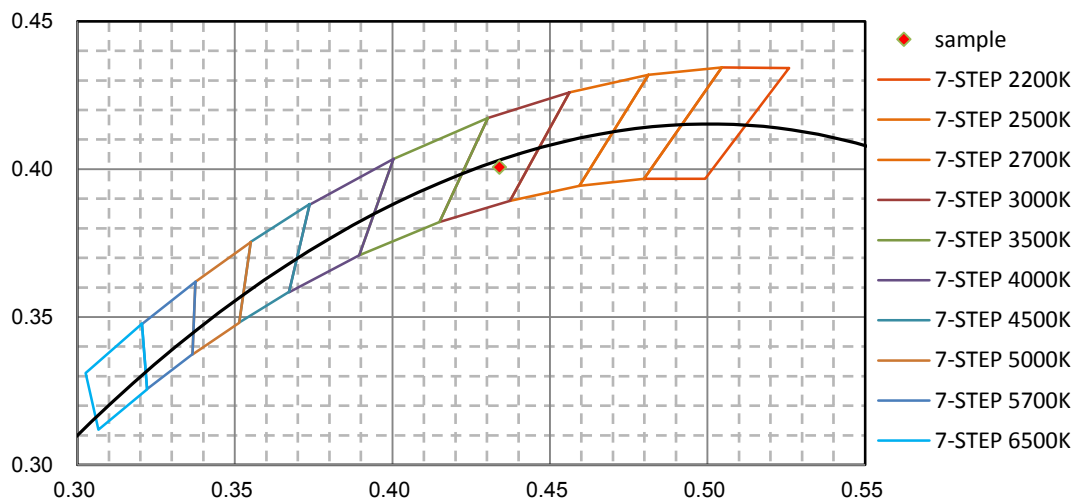
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	3.084E-01	421	6.529E-01	462	9.015E+00	503	8.427E+00	544	1.259E+01
381	2.599E-01	422	7.191E-01	463	8.613E+00	504	8.557E+00	545	1.266E+01
382	2.391E-01	423	7.910E-01	464	8.270E+00	505	8.685E+00	546	1.273E+01
383	1.950E-01	424	8.709E-01	465	7.969E+00	506	8.832E+00	547	1.281E+01
384	1.957E-01	425	9.523E-01	466	7.743E+00	507	8.965E+00	548	1.287E+01
385	1.850E-01	426	1.042E+00	467	7.570E+00	508	9.080E+00	549	1.295E+01
386	1.727E-01	427	1.139E+00	468	7.424E+00	509	9.200E+00	550	1.301E+01
387	1.583E-01	428	1.248E+00	469	7.311E+00	510	9.315E+00	551	1.308E+01
388	1.340E-01	429	1.353E+00	470	7.200E+00	511	9.423E+00	552	1.315E+01
389	1.297E-01	430	1.472E+00	471	7.092E+00	512	9.536E+00	553	1.321E+01
390	1.238E-01	431	1.607E+00	472	6.971E+00	513	9.655E+00	554	1.327E+01
391	1.103E-01	432	1.744E+00	473	6.859E+00	514	9.751E+00	555	1.333E+01
392	1.141E-01	433	1.879E+00	474	6.741E+00	515	9.862E+00	556	1.338E+01
393	1.017E-01	434	2.030E+00	475	6.566E+00	516	9.970E+00	557	1.344E+01
394	1.036E-01	435	2.208E+00	476	6.427E+00	517	1.006E+01	558	1.350E+01
395	9.446E-02	436	2.382E+00	477	6.283E+00	518	1.016E+01	559	1.354E+01
396	9.575E-02	437	2.574E+00	478	6.158E+00	519	1.028E+01	560	1.361E+01
397	9.603E-02	438	2.781E+00	479	6.058E+00	520	1.037E+01	561	1.367E+01
398	9.685E-02	439	2.994E+00	480	5.987E+00	521	1.047E+01	562	1.372E+01
399	9.585E-02	440	3.234E+00	481	5.945E+00	522	1.056E+01	563	1.376E+01
400	9.488E-02	441	3.477E+00	482	5.955E+00	523	1.067E+01	564	1.382E+01
401	9.705E-02	442	3.762E+00	483	5.967E+00	524	1.076E+01	565	1.387E+01
402	1.033E-01	443	4.082E+00	484	6.026E+00	525	1.084E+01	566	1.393E+01
403	1.062E-01	444	4.417E+00	485	6.100E+00	526	1.096E+01	567	1.398E+01
404	1.137E-01	445	4.816E+00	486	6.190E+00	527	1.105E+01	568	1.404E+01
405	1.208E-01	446	5.258E+00	487	6.290E+00	528	1.114E+01	569	1.409E+01
406	1.353E-01	447	5.740E+00	488	6.386E+00	529	1.122E+01	570	1.416E+01
407	1.449E-01	448	6.293E+00	489	6.519E+00	530	1.133E+01	571	1.422E+01
408	1.610E-01	449	6.874E+00	490	6.632E+00	531	1.142E+01	572	1.426E+01
409	1.749E-01	450	7.489E+00	491	6.751E+00	532	1.151E+01	573	1.434E+01
410	1.967E-01	451	8.129E+00	492	6.883E+00	533	1.162E+01	574	1.439E+01
411	2.138E-01	452	8.729E+00	493	7.012E+00	534	1.170E+01	575	1.446E+01
412	2.379E-01	453	9.287E+00	494	7.140E+00	535	1.180E+01	576	1.454E+01
413	2.693E-01	454	9.760E+00	495	7.268E+00	536	1.190E+01	577	1.460E+01
414	3.010E-01	455	1.012E+01	496	7.404E+00	537	1.199E+01	578	1.467E+01
415	3.429E-01	456	1.034E+01	497	7.544E+00	538	1.207E+01	579	1.476E+01
416	3.848E-01	457	1.042E+01	498	7.694E+00	539	1.216E+01	580	1.485E+01
417	4.275E-01	458	1.033E+01	499	7.819E+00	540	1.223E+01	581	1.493E+01
418	4.802E-01	459	1.012E+01	500	7.978E+00	541	1.236E+01	582	1.502E+01
419	5.304E-01	460	9.795E+00	501	8.113E+00	542	1.242E+01	583	1.511E+01
420	5.896E-01	461	9.419E+00	502	8.264E+00	543	1.250E+01	584	1.521E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	1.533E+01	626	2.089E+01	667	1.649E+01	708	7.248E+00	749	2.372E+00
586	1.544E+01	627	2.094E+01	668	1.627E+01	709	7.072E+00	750	2.312E+00
587	1.555E+01	628	2.100E+01	669	1.603E+01	710	6.897E+00	751	2.244E+00
588	1.568E+01	629	2.103E+01	670	1.580E+01	711	6.724E+00	752	2.183E+00
589	1.582E+01	630	2.107E+01	671	1.555E+01	712	6.562E+00	753	2.124E+00
590	1.595E+01	631	2.109E+01	672	1.531E+01	713	6.397E+00	754	2.058E+00
591	1.607E+01	632	2.111E+01	673	1.507E+01	714	6.242E+00	755	2.001E+00
592	1.621E+01	633	2.111E+01	674	1.483E+01	715	6.085E+00	756	1.943E+00
593	1.634E+01	634	2.111E+01	675	1.457E+01	716	5.933E+00	757	1.890E+00
594	1.648E+01	635	2.109E+01	676	1.434E+01	717	5.779E+00	758	1.833E+00
595	1.662E+01	636	2.108E+01	677	1.409E+01	718	5.629E+00	759	1.785E+00
596	1.677E+01	637	2.103E+01	678	1.385E+01	719	5.487E+00	760	1.731E+00
597	1.691E+01	638	2.099E+01	679	1.361E+01	720	5.344E+00	761	1.680E+00
598	1.705E+01	639	2.094E+01	680	1.336E+01	721	5.208E+00	762	1.629E+00
599	1.721E+01	640	2.087E+01	681	1.312E+01	722	5.078E+00	763	1.587E+00
600	1.737E+01	641	2.081E+01	682	1.288E+01	723	4.939E+00	764	1.540E+00
601	1.754E+01	642	2.073E+01	683	1.263E+01	724	4.808E+00	765	1.493E+00
602	1.769E+01	643	2.065E+01	684	1.239E+01	725	4.674E+00	766	1.449E+00
603	1.786E+01	644	2.054E+01	685	1.215E+01	726	4.553E+00	767	1.406E+00
604	1.802E+01	645	2.045E+01	686	1.192E+01	727	4.431E+00	768	1.369E+00
605	1.816E+01	646	2.032E+01	687	1.168E+01	728	4.307E+00	769	1.323E+00
606	1.834E+01	647	2.021E+01	688	1.144E+01	729	4.189E+00	770	1.289E+00
607	1.850E+01	648	2.007E+01	689	1.122E+01	730	4.073E+00	771	1.249E+00
608	1.864E+01	649	1.994E+01	690	1.098E+01	731	3.963E+00	772	1.215E+00
609	1.881E+01	650	1.980E+01	691	1.075E+01	732	3.854E+00	773	1.183E+00
610	1.896E+01	651	1.964E+01	692	1.053E+01	733	3.745E+00	774	1.144E+00
611	1.910E+01	652	1.950E+01	693	1.029E+01	734	3.643E+00	775	1.112E+00
612	1.927E+01	653	1.934E+01	694	1.007E+01	735	3.540E+00	776	1.082E+00
613	1.942E+01	654	1.917E+01	695	9.854E+00	736	3.445E+00	777	1.050E+00
614	1.957E+01	655	1.898E+01	696	9.651E+00	737	3.347E+00	778	1.020E+00
615	1.972E+01	656	1.880E+01	697	9.429E+00	738	3.250E+00	779	1.014E+00
616	1.986E+01	657	1.863E+01	698	9.218E+00	739	3.158E+00	780	1.016E+00
617	1.999E+01	658	1.842E+01	699	9.012E+00	740	3.069E+00		
618	2.012E+01	659	1.824E+01	700	8.798E+00	741	2.980E+00		
619	2.023E+01	660	1.804E+01	701	8.590E+00	742	2.899E+00		
620	2.035E+01	661	1.782E+01	702	8.390E+00	743	2.818E+00		
621	2.047E+01	662	1.761E+01	703	8.194E+00	744	2.737E+00		
622	2.055E+01	663	1.739E+01	704	7.997E+00	745	2.661E+00		
623	2.066E+01	664	1.717E+01	705	7.810E+00	746	2.588E+00		
624	2.074E+01	665	1.695E+01	706	7.620E+00	747	2.517E+00		
625	2.080E+01	666	1.672E+01	707	7.426E+00	748	2.445E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles





Model: 11PAR30SNDIM/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**

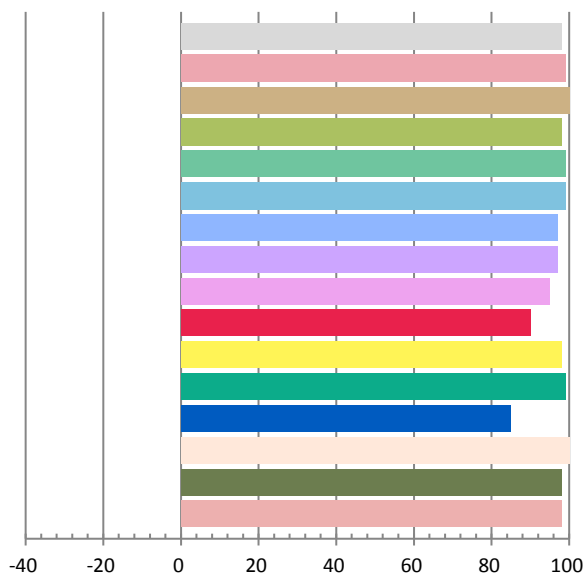
### Photometric and Electrical Measurement Result

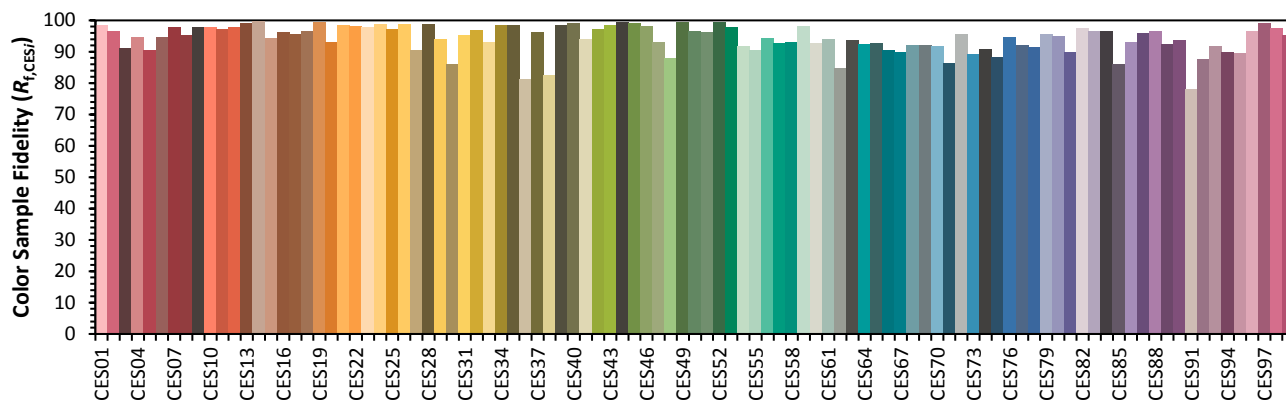
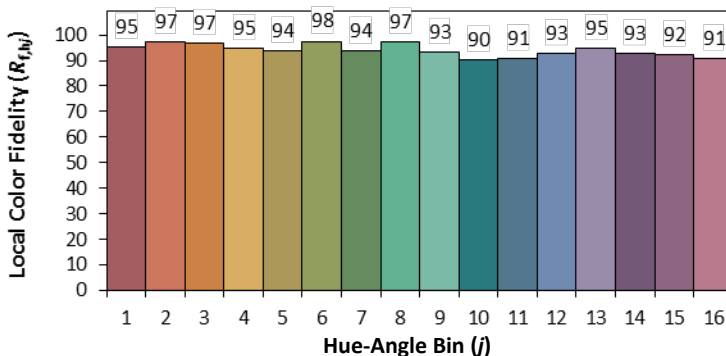
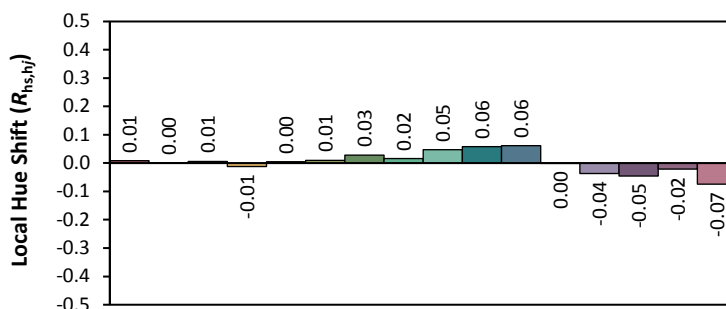
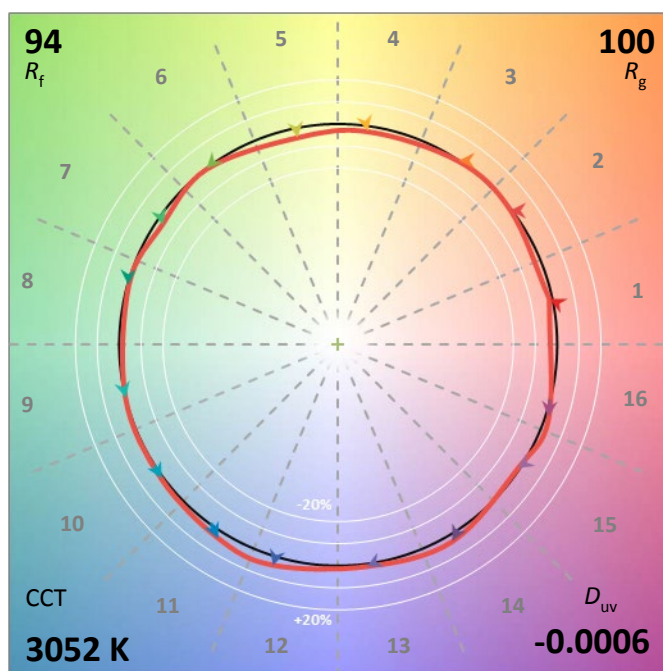
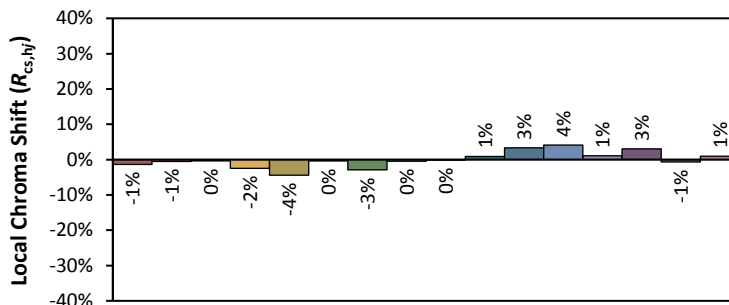
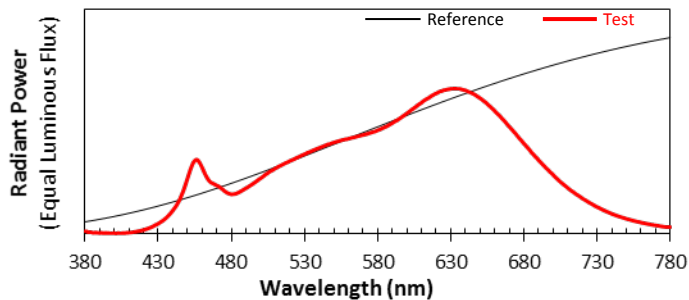
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.09112	10.49	0.9593	994.76	94.81

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
3.706	3053	-0.000588	0.4324	0.4010	0.2490	0.5195

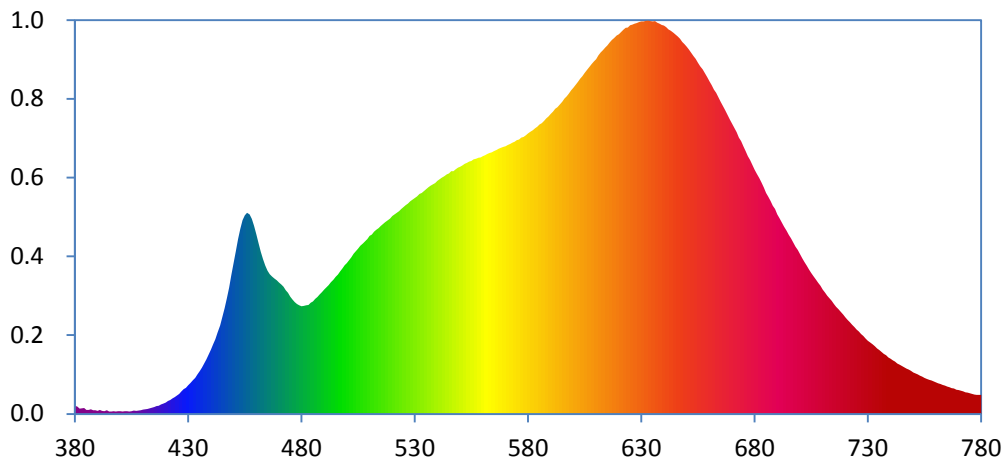
### Color Rendering Index

<b>Ra</b>			
<b>98.0</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
99	100	98	99
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
99	97	97	95
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
90	98	99	85
<b>R13</b>	<b>R14</b>	<b>R15</b>	
100	98	98	





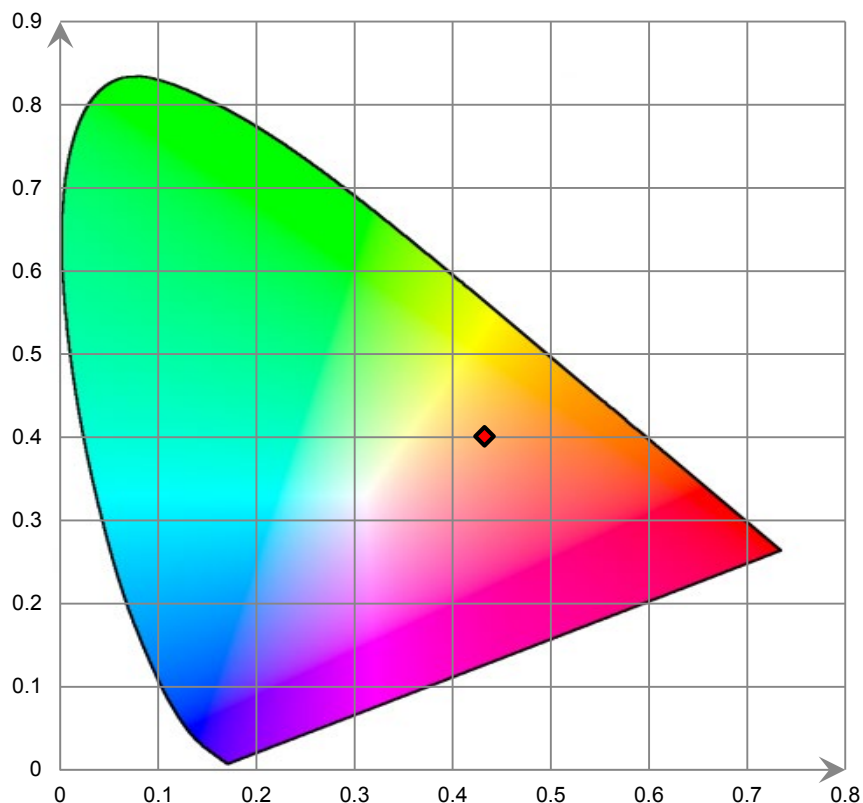
### Relative Spectral Power Distribution



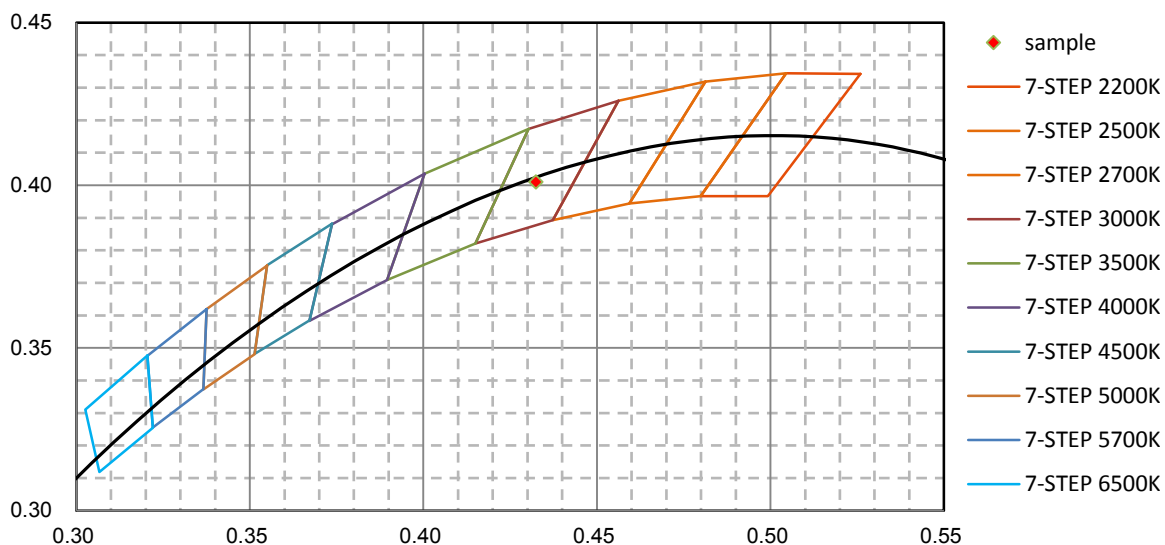
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	4.120E-01	421	6.803E-01	462	8.547E+00	503	8.446E+00	544	1.262E+01
381	4.002E-01	422	7.296E-01	463	8.150E+00	504	8.581E+00	545	1.268E+01
382	2.822E-01	423	8.132E-01	464	7.814E+00	505	8.713E+00	546	1.279E+01
383	2.986E-01	424	8.923E-01	465	7.539E+00	506	8.869E+00	547	1.279E+01
384	3.041E-01	425	9.732E-01	466	7.353E+00	507	8.988E+00	548	1.289E+01
385	2.133E-01	426	1.062E+00	467	7.250E+00	508	9.102E+00	549	1.298E+01
386	2.032E-01	427	1.183E+00	468	7.133E+00	509	9.222E+00	550	1.303E+01
387	2.409E-01	428	1.301E+00	469	7.036E+00	510	9.379E+00	551	1.310E+01
388	1.924E-01	429	1.379E+00	470	6.919E+00	511	9.450E+00	552	1.317E+01
389	1.868E-01	430	1.508E+00	471	6.824E+00	512	9.597E+00	553	1.322E+01
390	1.565E-01	431	1.635E+00	472	6.701E+00	513	9.704E+00	554	1.330E+01
391	2.074E-01	432	1.787E+00	473	6.518E+00	514	9.792E+00	555	1.334E+01
392	1.663E-01	433	1.904E+00	474	6.386E+00	515	9.912E+00	556	1.342E+01
393	1.494E-01	434	2.074E+00	475	6.185E+00	516	1.001E+01	557	1.344E+01
394	1.878E-01	435	2.247E+00	476	6.031E+00	517	1.012E+01	558	1.350E+01
395	1.343E-01	436	2.434E+00	477	5.900E+00	518	1.020E+01	559	1.352E+01
396	1.339E-01	437	2.650E+00	478	5.795E+00	519	1.030E+01	560	1.358E+01
397	1.374E-01	438	2.874E+00	479	5.727E+00	520	1.042E+01	561	1.363E+01
398	1.270E-01	439	3.124E+00	480	5.676E+00	521	1.051E+01	562	1.370E+01
399	1.452E-01	440	3.375E+00	481	5.686E+00	522	1.059E+01	563	1.375E+01
400	1.364E-01	441	3.660E+00	482	5.717E+00	523	1.069E+01	564	1.379E+01
401	1.212E-01	442	3.944E+00	483	5.750E+00	524	1.081E+01	565	1.385E+01
402	1.396E-01	443	4.294E+00	484	5.851E+00	525	1.090E+01	566	1.391E+01
403	1.392E-01	444	4.668E+00	485	5.932E+00	526	1.100E+01	567	1.396E+01
404	1.316E-01	445	5.111E+00	486	6.070E+00	527	1.109E+01	568	1.402E+01
405	1.451E-01	446	5.574E+00	487	6.165E+00	528	1.120E+01	569	1.408E+01
406	1.763E-01	447	6.090E+00	488	6.293E+00	529	1.129E+01	570	1.411E+01
407	1.563E-01	448	6.657E+00	489	6.417E+00	530	1.138E+01	571	1.417E+01
408	1.848E-01	449	7.322E+00	490	6.545E+00	531	1.146E+01	572	1.422E+01
409	1.996E-01	450	7.946E+00	491	6.670E+00	532	1.159E+01	573	1.428E+01
410	2.234E-01	451	8.581E+00	492	6.793E+00	533	1.165E+01	574	1.435E+01
411	2.380E-01	452	9.212E+00	493	6.940E+00	534	1.174E+01	575	1.443E+01
412	2.647E-01	453	9.754E+00	494	7.074E+00	535	1.184E+01	576	1.447E+01
413	3.002E-01	454	1.021E+01	495	7.221E+00	536	1.194E+01	577	1.456E+01
414	3.331E-01	455	1.046E+01	496	7.353E+00	537	1.202E+01	578	1.459E+01
415	3.594E-01	456	1.060E+01	497	7.508E+00	538	1.211E+01	579	1.468E+01
416	4.140E-01	457	1.051E+01	498	7.656E+00	539	1.217E+01	580	1.478E+01
417	4.371E-01	458	1.027E+01	499	7.831E+00	540	1.228E+01	581	1.486E+01
418	4.942E-01	459	9.907E+00	500	7.957E+00	541	1.236E+01	582	1.494E+01
419	5.505E-01	460	9.467E+00	501	8.108E+00	542	1.245E+01	583	1.505E+01
420	6.013E-01	461	8.991E+00	502	8.252E+00	543	1.251E+01	584	1.514E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	1.525E+01	626	2.051E+01	667	1.601E+01	708	6.913E+00	749	2.266E+00
586	1.532E+01	627	2.056E+01	668	1.577E+01	709	6.747E+00	750	2.191E+00
587	1.544E+01	628	2.060E+01	669	1.551E+01	710	6.550E+00	751	2.127E+00
588	1.556E+01	629	2.064E+01	670	1.529E+01	711	6.395E+00	752	2.085E+00
589	1.568E+01	630	2.069E+01	671	1.506E+01	712	6.229E+00	753	2.020E+00
590	1.581E+01	631	2.068E+01	672	1.485E+01	713	6.092E+00	754	1.960E+00
591	1.593E+01	632	2.072E+01	673	1.457E+01	714	5.957E+00	755	1.901E+00
592	1.608E+01	633	2.072E+01	674	1.437E+01	715	5.798E+00	756	1.856E+00
593	1.616E+01	634	2.070E+01	675	1.411E+01	716	5.643E+00	757	1.798E+00
594	1.631E+01	635	2.068E+01	676	1.385E+01	717	5.521E+00	758	1.767E+00
595	1.644E+01	636	2.069E+01	677	1.359E+01	718	5.381E+00	759	1.719E+00
596	1.661E+01	637	2.062E+01	678	1.338E+01	719	5.230E+00	760	1.654E+00
597	1.674E+01	638	2.057E+01	679	1.313E+01	720	5.078E+00	761	1.612E+00
598	1.689E+01	639	2.050E+01	680	1.288E+01	721	4.952E+00	762	1.581E+00
599	1.705E+01	640	2.047E+01	681	1.266E+01	722	4.833E+00	763	1.534E+00
600	1.720E+01	641	2.038E+01	682	1.241E+01	723	4.699E+00	764	1.488E+00
601	1.735E+01	642	2.026E+01	683	1.218E+01	724	4.578E+00	765	1.442E+00
602	1.749E+01	643	2.019E+01	684	1.194E+01	725	4.441E+00	766	1.401E+00
603	1.767E+01	644	2.009E+01	685	1.165E+01	726	4.342E+00	767	1.365E+00
604	1.781E+01	645	2.000E+01	686	1.145E+01	727	4.210E+00	768	1.334E+00
605	1.796E+01	646	1.989E+01	687	1.122E+01	728	4.102E+00	769	1.281E+00
606	1.811E+01	647	1.977E+01	688	1.097E+01	729	3.975E+00	770	1.258E+00
607	1.829E+01	648	1.961E+01	689	1.079E+01	730	3.854E+00	771	1.222E+00
608	1.844E+01	649	1.948E+01	690	1.052E+01	731	3.775E+00	772	1.184E+00
609	1.858E+01	650	1.935E+01	691	1.031E+01	732	3.667E+00	773	1.145E+00
610	1.870E+01	651	1.919E+01	692	1.009E+01	733	3.574E+00	774	1.122E+00
611	1.889E+01	652	1.903E+01	693	9.870E+00	734	3.445E+00	775	1.081E+00
612	1.905E+01	653	1.886E+01	694	9.661E+00	735	3.363E+00	776	1.056E+00
613	1.917E+01	654	1.872E+01	695	9.443E+00	736	3.264E+00	777	1.015E+00
614	1.929E+01	655	1.851E+01	696	9.247E+00	737	3.170E+00	778	1.003E+00
615	1.941E+01	656	1.831E+01	697	9.035E+00	738	3.087E+00	779	1.005E+00
616	1.956E+01	657	1.814E+01	698	8.816E+00	739	2.985E+00	780	1.007E+00
617	1.970E+01	658	1.794E+01	699	8.635E+00	740	2.902E+00		
618	1.981E+01	659	1.775E+01	700	8.419E+00	741	2.819E+00		
619	1.994E+01	660	1.753E+01	701	8.206E+00	742	2.753E+00		
620	2.001E+01	661	1.732E+01	702	8.005E+00	743	2.659E+00		
621	2.013E+01	662	1.710E+01	703	7.824E+00	744	2.593E+00		
622	2.025E+01	663	1.692E+01	704	7.608E+00	745	2.528E+00		
623	2.034E+01	664	1.669E+01	705	7.427E+00	746	2.459E+00		
624	2.036E+01	665	1.645E+01	706	7.259E+00	747	2.387E+00		
625	2.048E+01	666	1.624E+01	707	7.079E+00	748	2.333E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



Model: 11PAR30SNDIM/930FL40/SL

### [Goniophotometer System]

The Stabilization time: **30 minutes**

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

Test orientation: **Base up**

### Electrical Measurement

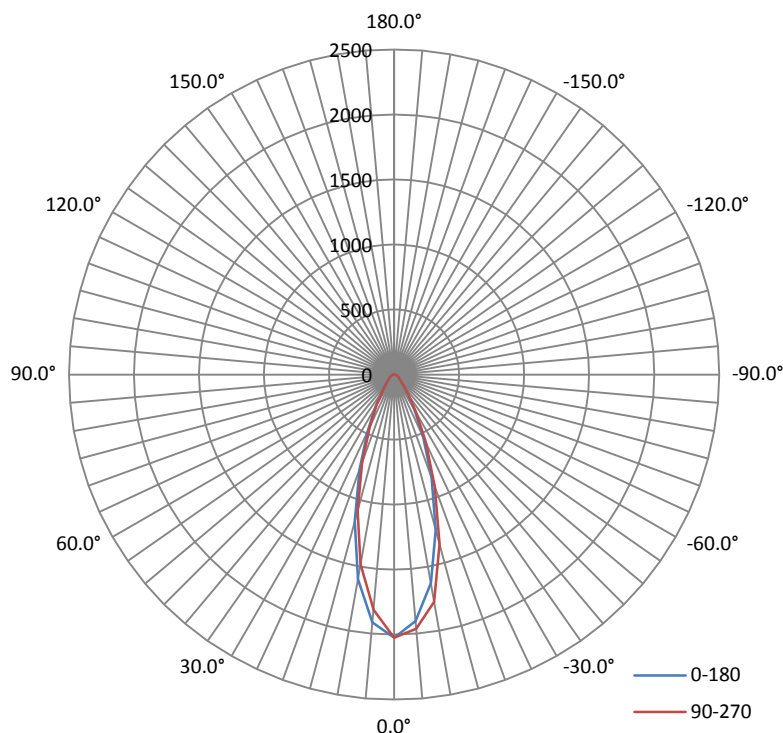
Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.07	60	0.0914	10.480	0.9549

### Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I <sub>max</sub> (cd)	S/MH (C0/180)	S/MH (C90/270)
1001.1	95.52	2038.0	0.58	0.62

### Luminous Intensity Distribution

	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I <sub>max</sub> ):	34.6	34.7	34.6	34.3	34.5
Field Angle (10% I <sub>max</sub> ):	67.3	67.1	67.4	67.5	67.3



**Luminous Intensity (cd) Distribution Data**

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	2025	2025	2025	2025	2025	2025	2025	2025
5.0°	1912	1883	1851	1832	1817	1821	1844	1860
10.0°	1597	1537	1504	1491	1479	1480	1509	1544
15.0°	1167	1127	1104	1094	1087	1087	1111	1145
20.0°	777	748	735	727	720	730	742	767
25.0°	483	459	452	447	444	455	468	485
30.0°	285	268	261	260	263	272	279	287
35.0°	167	157	153	154	156	159	165	168
40.0°	101	97	95	97	98	99	103	104
45.0°	70	68	67	68	69	69	70	71
50.0°	54	52	51	51	52	53	53	53
55.0°	45	43	42	42	43	43	44	45
60.0°	35	34	33	33	33	33	33	34
65.0°	26	25	24	24	24	24	24	25
70.0°	19	18	18	18	18	18	18	18
75.0°	13	13	12	12	12	12	12	13
80.0°	8	8	8	7	7	7	8	8
85.0°	4	4	3	3	3	3	3	3
90.0°	1	1	1	1	1	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°	1	1	1	1	1	1	1	1
150.0°	2	2	2	2	2	2	2	2
155.0°	2	2	2	2	2	2	2	2
160.0°	2	2	2	2	2	2	2	2
165.0°	2	2	2	2	2	2	2	2
170.0°	2	2	2	2	2	2	2	2
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.)

$\begin{matrix} C \\ \backslash \\ \gamma \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	2025	2025	2025	2025	2025	2025	2025	2025
5.0°	1902	1924	1942	1951	1962	1963	1956	1941
10.0°	1628	1685	1730	1757	1776	1765	1731	1683
15.0°	1238	1281	1318	1344	1348	1325	1289	1250
20.0°	841	875	903	912	915	902	867	844
25.0°	533	556	570	574	575	564	545	530
30.0°	317	334	343	346	345	339	328	315
35.0°	184	194	198	202	204	201	194	184
40.0°	112	117	120	121	123	122	118	111
45.0°	75	78	79	80	80	80	77	74
50.0°	56	58	58	60	60	59	58	56
55.0°	46	47	48	47	48	48	47	46
60.0°	36	37	38	38	38	38	38	37
65.0°	26	27	28	29	29	29	28	27
70.0°	19	20	21	21	21	21	21	20
75.0°	14	14	15	15	15	15	15	14
80.0°	9	9	9	10	10	10	10	9
85.0°	4	5	5	5	5	5	5	5
90.0°	1	2	2	2	2	2	2	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°	0	0	0	0	0	0	0	0
145.0°	0	0	0	0	0	0	0	0
150.0°	0	0	0	0	0	0	0	0
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	46.7	4.67
5-10	125.7	12.55
10-15	166.4	16.62
15-20	164.2	16.41
20-25	136.1	13.59
25-30	100.1	10.00
30-35	68.7	6.86
35-40	46.5	4.64
40-45	32.8	3.28
45-50	25.6	2.56
50-55	21.7	2.17
55-60	18.7	1.87
60-65	14.9	1.49
65-70	11.5	1.14
70-75	8.5	0.85
75-80	5.8	0.59
80-85	3.4	0.33
85-90	1.4	0.14
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	0.01
115-120	0.0	0.00
120-125	0.0	0.00
125-130	0.0	0.01
130-135	0.1	0.00
135-140	0.1	0.02
140-145	0.2	0.02
145-150	0.3	0.03
150-155	0.3	0.03
155-160	0.3	0.03
160-165	0.3	0.03
165-170	0.2	0.02
170-175	0.1	0.01
175-180	0.0	0.00

Deg	Flux (lm)	%
0-5	46.7	4.67
0-10	172.4	17.22
0-15	338.8	33.84
0-20	503.0	50.25
0-25	639.1	63.84
0-30	739.2	73.84
0-35	807.9	80.70
0-40	854.4	85.34
0-45	887.2	88.62
0-50	912.8	91.18
0-55	934.5	93.35
0-60	953.2	95.22
0-65	968.1	96.71
0-70	979.6	97.85
0-75	988.1	98.70
0-80	994.0	99.29
0-85	997.3	99.62
0-90	998.7	99.76
0-95	999.0	99.79
0-100	999.0	99.79
0-105	999.0	99.79
0-110	999.0	99.79
0-115	999.1	99.80
0-120	999.1	99.80
0-125	999.1	99.80
0-130	999.1	99.81
0-135	999.2	99.81
0-140	999.4	99.83
0-145	999.6	99.85
0-150	999.9	99.88
0-155	1000.2	99.91
0-160	1000.5	99.94
0-165	1000.8	99.97
0-170	1001.0	99.99
0-175	1001.1	100.00
0-180	1001.1	100.00

**[Additional Test]**

Model: 11PAR30SNDIM/930FL40/SL

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120.0	60	17.51%

Model: 11PAR30SNDIM/930FL40/B/SL

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120.0	60	16.32%

## 6. Product Photo

Photo for 11PAR30SNDIM/930FL40/SL



Photo for 11PAR30SNDIM/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\*\*\*\*\*