

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ESSF0606P48600930FW1

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-043

ISSUE DATE

11/16/2020

REVISED DATE

None

TEST DATES

11/03/2020 through 11/05/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104349704CHI-043

MODEL NUMBER(s)

ESSF0606P48600930FW1

REPORT RENDERED TO:

GENERATION BRANDS, LLC
7400 LINDER AVE
SKOKIE, IL 60077
USA

STATEMENT OF LIMITATION

NVLAP Lab Code 600186-0. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-01080748-3.

TEST STANDARDS

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2017: Specifications for the Chromaticity of Solid State Lighting (SSL) Products

In Charge of Testing:



Ian Smith
Engineer
Lighting Division

Reviewer:



Jeff Davis
NA Technical Lead
Lighting Division

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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH10292020032135	ESSF0606P48600930FW 1	ESSENCE 0606 P 800 930 FW	Production	10/29/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ESSF0606P48600930FW1	1

SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ESSF0606P48600930FW1
Product Description:	ESSENCE 0606 P 800 930 FW
LED Model No.:	P Series 800lm/ft
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	2434.1	2510.7
Input Power (W) @ 24 (Vdc)	28.50	29.51
Lumen Efficacy (lm/W)	85.4	85.1

Criteria	Results
Input ATHD (%) @ 24 (Vdc)	NA
Correlated Color Temperature (K)	3031
Color Rendering Index - Ra (l)	97.4
Color Rendering Index - R9 (l)	96.9
Duv (l)	-0.0023
Chromaticity Coordinate (x)	0.431
Chromaticity Coordinate (y)	0.396
Chromaticity Coordinate (u')	0.250
Chromaticity Coordinate (v')	0.518

TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

No seasoning was performed in accordance with IESNA LM-79.

INTEGRATING SPHERE TESTING

A spectroradiometer and integrating sphere were used to measure the spectral distribution for each EUT resulting in photometric and colorimetric data. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position inside the sphere and stabilization procedures to LM-79 were followed.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

A Type C Mirror Goniophotometer system was used to measure the luminous intensity (candela) at each angle of distribution for the EUT. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position near the EUT at equal height and stabilization procedures to LM-79 were followed.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606P48600930FW1	NA

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

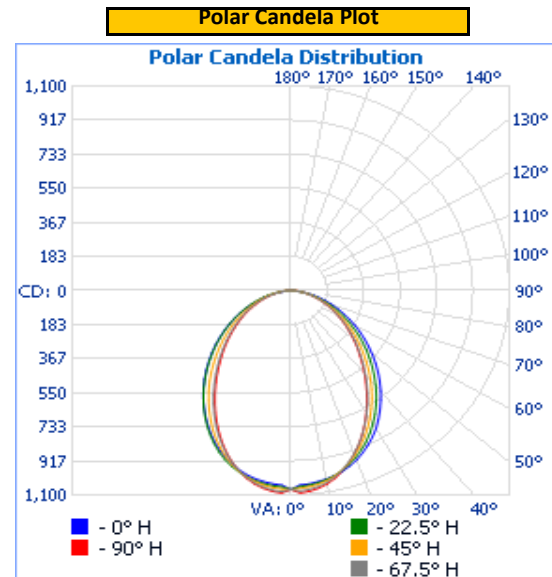
Base Orientation	Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor (f)
Up	24.0	1187.6	28.50	NA

Light Output (lm)	Lumen Efficacy (lm/W)
2434.1	85.4

INTENSITY SUMMARY - CANDELA

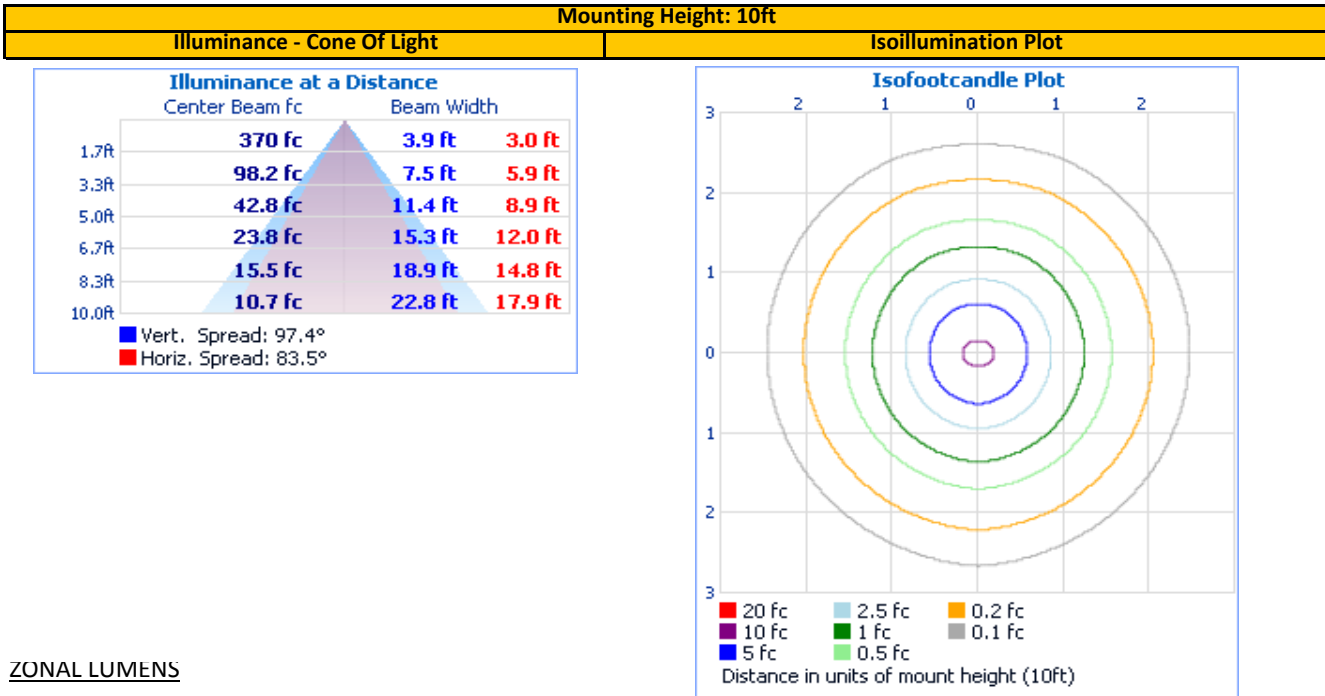
Angle	0	22.5	45	67.5	90
0	1070	1070	1070	1070	1070
5	1044	1051	1059	1073	1083
10	1030	1033	1038	1048	1056
15	1005	1001	999	999	1005
20	968	955	942	932	935
25	917	896	874	852	852
30	857	825	795	764	760
35	783	748	711	674	666
40	703	664	624	582	575
45	621	579	536	498	492
50	536	496	453	421	415
55	452	414	377	349	345
60	371	337	306	283	280
65	293	265	240	223	220
70	219	196	180	168	165
75	150	133	126	119	117
80	88	78	78	76	75
85	37	33	39	42	42
90	0	0	0	0	0
95	0	0	0	0	0
100	0	0	0	0	0
105	0	0	0	0	0
110	0	0	0	0	0
115	0	0	0	0	0
120	0	0	0	0	0
125	0	0	0	0	0
130	0	0	0	0	0
135	0	0	0	0	0
140	0	0	0	0	0
145	0	0	0	0	0
150	0	0	0	0	0
155	0	0	0	0	0
160	0	0	0	0	0
165	0	0	0	0	0
170	0	0	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0

Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	787.0	32.3%	90-100	0.0	0.0%
0-40	1,235.0	50.7%	100-110	0.0	0.0%
0-60	2,003.7	82.3%	110-120	0.0	0.0%
60-90	430.3	17.7%	120-130	0.0	0.0%
70-100	183.2	7.5%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	2,434.1	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	2,434.1	100.0%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606P48600930FW1	NA

PHOTOMETRIC, COLORIMETRIC, AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

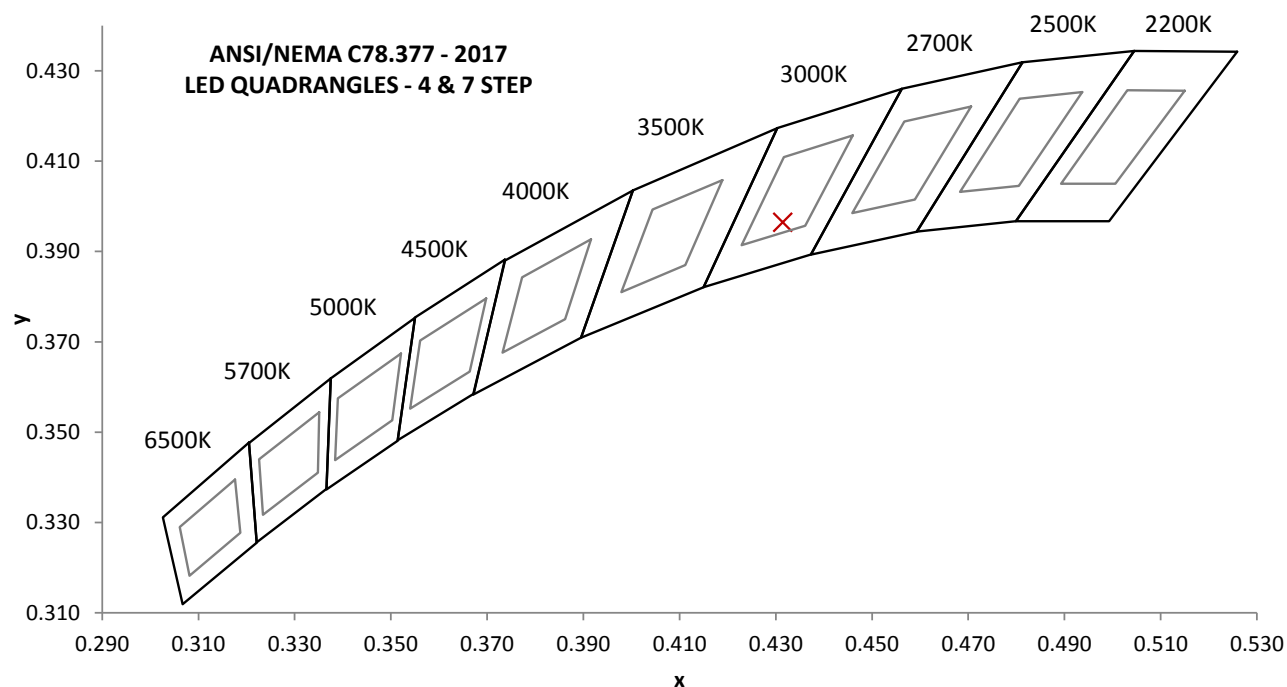
Base Orientation
Up

Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
24.00	1229.5	29.51	NA	NA

Measured at 24(Vdc)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
2510.7	85.1	3031	97.4	96.9

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0023	0.431	0.396	0.250	0.518

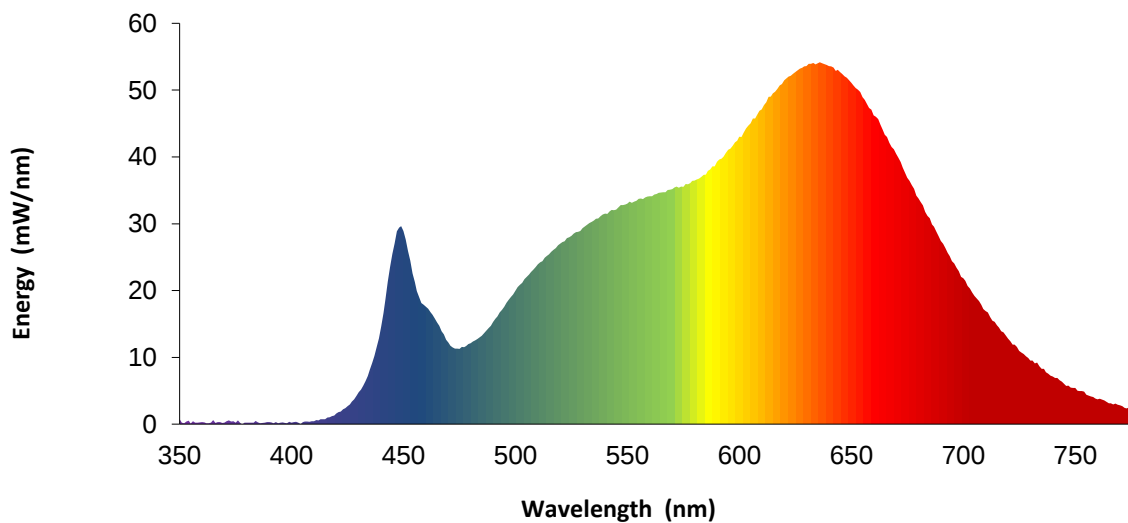


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.7		460	17.6		570	35.2		680	33.8
355	0.1		465	15.2		575	35.5		685	30.9
360	0.3		470	12.2		580	36.4		690	27.4
365	0.6		475	11.3		585	37.4		695	24.4
370	0.2		480	12.1		590	39.3		700	21.8
375	0.2		485	13.2		595	41.1		705	19.2
380	0.2		490	15.3		600	43.0		710	16.9
385	0.3		495	17.6		605	45.0		715	14.8
390	0.3		500	19.9		610	47.1		720	12.8
395	0.2		505	22.1		615	49.5		725	11.0
400	0.2		510	23.9		620	51.5		730	9.5
405	0.3		515	25.4		625	52.7		735	8.3
410	0.4		520	27.0		630	53.6		740	7.1
415	0.7		525	28.2		635	54.0		745	6.0
420	1.6		530	29.4		640	53.6		750	5.4
425	2.7		535	30.5		645	52.7		755	4.4
430	4.8		540	31.5		650	51.1		760	3.7
435	8.1		545	32.1		655	48.9		765	3.1
440	14.6		550	33.0		660	46.2		770	2.8
445	25.4		555	33.7		665	43.3		775	2.3
450	28.9		560	34.1		670	40.5		780	2.1
455	21.3		565	34.7		675	36.9		---	---

Without correction of sample absorption.



Portrayed color in graphic is estimated by wavelength (nm) and may not be exact - it is a visual representation only

EQUIPMENT LIST

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#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	Yokogawa Power Meter	WT210	146919	7/1/2020	7/1/2021
2	Omega Thermometer	DPI8-C24	146920	10/1/2020	10/1/2021
3	LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
4	Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
5	Sorenson DC Power Supply	XHR 150-7	146922	VBV	VBV
6	Labsphere Spectroradiometer	CDS-600	146923	VBV	VBV
7	2M Rotating Sphere	7660-ROT	146923	VBV	VBV
8	Omega thermometer	USB TC08	EQA002615	4/7/2020	4/7/2021
9	Ametek DC Power Supply	XFR150-8	1468464	VBV	VBV
10	Yokogawa Power Meter	WT210	146880	10/1/2020	10/1/2021
11	Chroma Power Supply	61604	CHI0371	VBV	VBV
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Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

REVISION HISTORY

#	Revision Date	Updated By	Reviewed By	Description of Change
---	None	---	---	---
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ANNEX A - TM-30 CALCULATIONS

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606P48600930FW1	NA

TM-30 REPORT

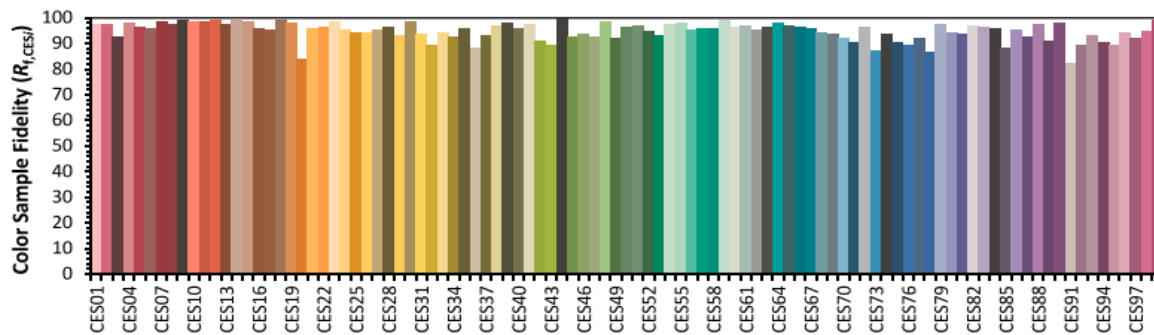
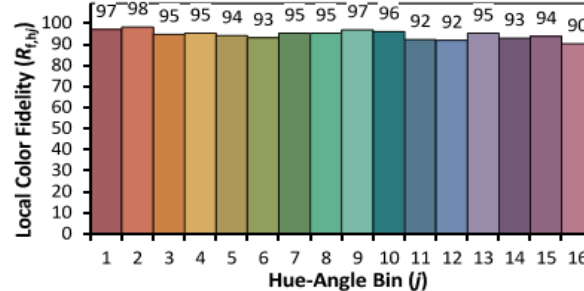
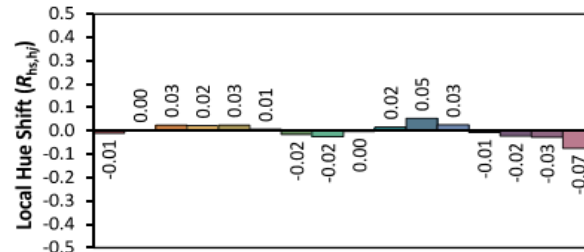
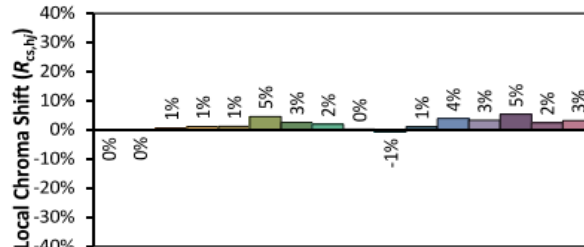
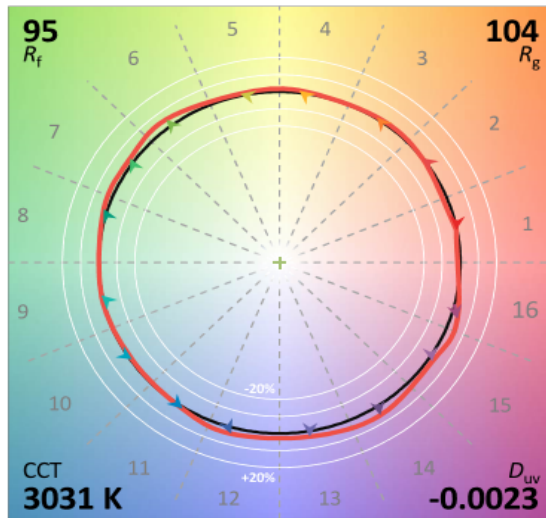
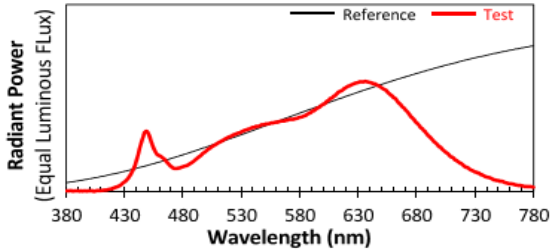
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Generation Brands, LLC

Date: 11/3/2020

Model: ESSF0606P48600930FW1



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4315
 y 0.3964
 u' 0.2503
 v' 0.5175

Colors are for visual orientation purposes only. Created with the IES TM-30-18 Calculator Version 2.00.