

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ESSF0606P48150930AW1

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-040

ISSUE DATE

11/16/2020

REVISED DATE

None

TEST DATES

11/02/2020 through 11/05/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104349704CHI-040

MODEL NUMBER(s)

ESSF0606P48150930AW1

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

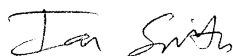
The testing performed was authorized by signed quote number Qu-01080748-3.

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
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Reviewer:



Jeff Davis
NA Technical Lead
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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH10292020032135	ESSF0606P48150930AW 1	ESSENCE 0606 P 200 930 WW	Production	10/29/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ESSF0606P48150930AW1	1

SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ESSF0606P48150930AW1
Product Description:	ESSENCE 0606 P 200 930 WW
LED Model No.:	P Series 200lm/ft
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	528.6	518.0
Input Power (W) @ 24 (Vdc)	7.53	7.58
Lumen Efficacy (lm/W)	70.2	68.4

Criteria	Results
Input ATHD (%) @ 24 (Vdc)	NA
Correlated Color Temperature (K)	2922
Color Rendering Index - Ra (l)	97.7
Color Rendering Index - R9 (l)	97.7
Duv (l)	-0.0006
Chromaticity Coordinate (x)	0.442
Chromaticity Coordinate (y)	0.404
Chromaticity Coordinate (u')	0.254
Chromaticity Coordinate (v')	0.522

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	ESSF0606P48150930AW1	NA

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

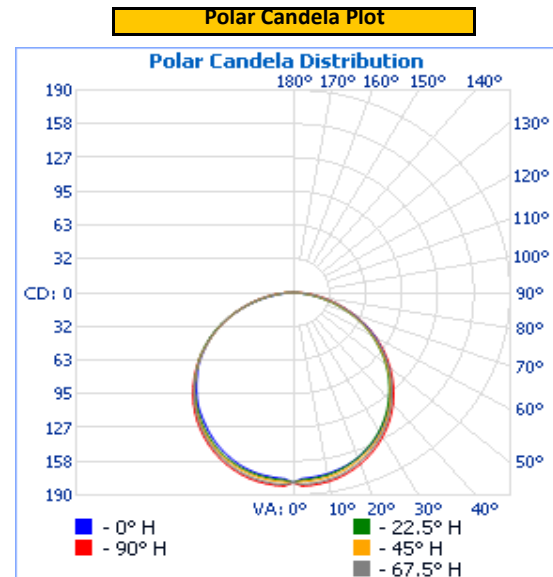
Base Orientation	Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	24.0	313.7	7.53	NA

Light Output (lm)	Lumen Efficacy (lm/W)
528.6	70.2

INTENSITY SUMMARY - CANDELA

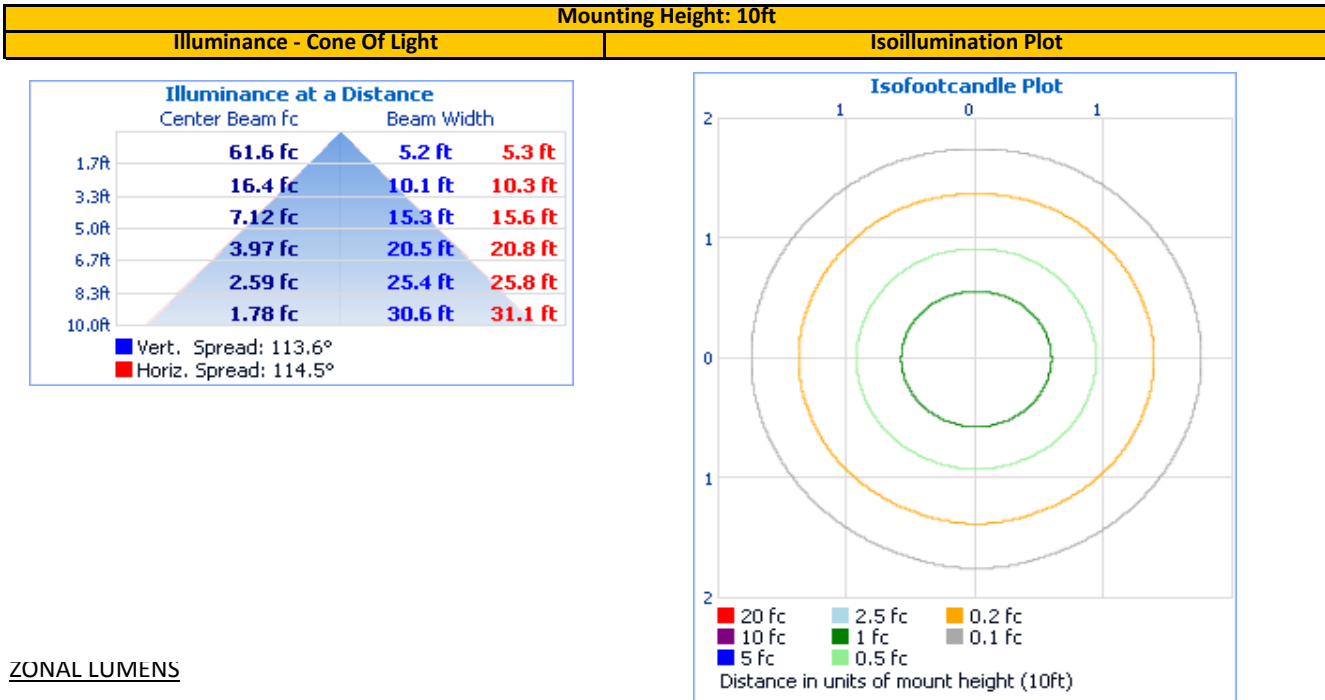
Angle	0	22.5	45	67.5	90
0	178	178	178	178	178
5	174	175	177	180	181
10	172	174	176	178	180
15	170	170	172	175	176
20	165	165	167	169	171
25	159	158	160	162	164
30	151	150	152	154	156
35	142	141	143	145	147
40	132	130	132	134	136
45	120	119	120	122	124
50	109	106	108	109	111
55	96	93	94	95	97
60	82	79	80	81	83
65	68	65	66	67	69
70	52	49	51	52	54
75	37	34	36	38	39
80	22	20	22	25	26
85	9	8	11	14	15
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					
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Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	139.8	26.4%	90-100	0.0	0.0%
0-40	229.6	43.4%	10-20	48.7	9.2%
0-60	408.9	77.4%	20-30	74.2	14.0%
60-90	119.7	22.6%	30-40	89.8	17.0%
70-100	53.0	10.0%	40-50	93.7	17.7%
90-120	0.0	0.0%	50-60	85.6	16.2%
0-90	528.6	100.0%	60-70	66.7	12.6%
90-180	0.0	0.0%	70-80	39.8	7.5%
0-180	528.6	100.0%	80-90	13.3	2.5%
			100-110	0.0	0.0%
			110-120	0.0	0.0%
			120-130	0.0	0.0%
			130-140	0.0	0.0%
			140-150	0.0	0.0%
			150-160	0.0	0.0%
			160-170	0.0	0.0%
			170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606P48150930AW1	NA

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

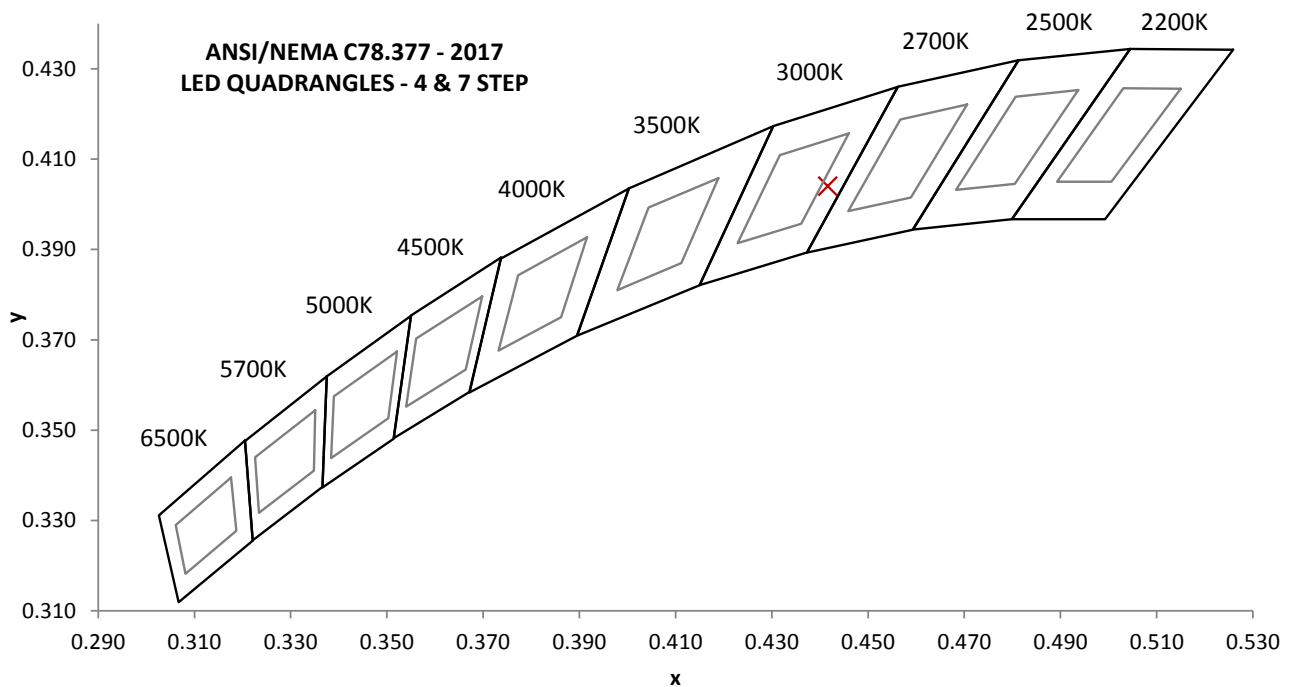
Base Orientation
Up

Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
24.01	315.6	7.58	NA	NA

Measured at 24.01(Vdc)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
518.0	68.4	2922	97.7	97.7

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0006	0.442	0.404	0.254	0.522

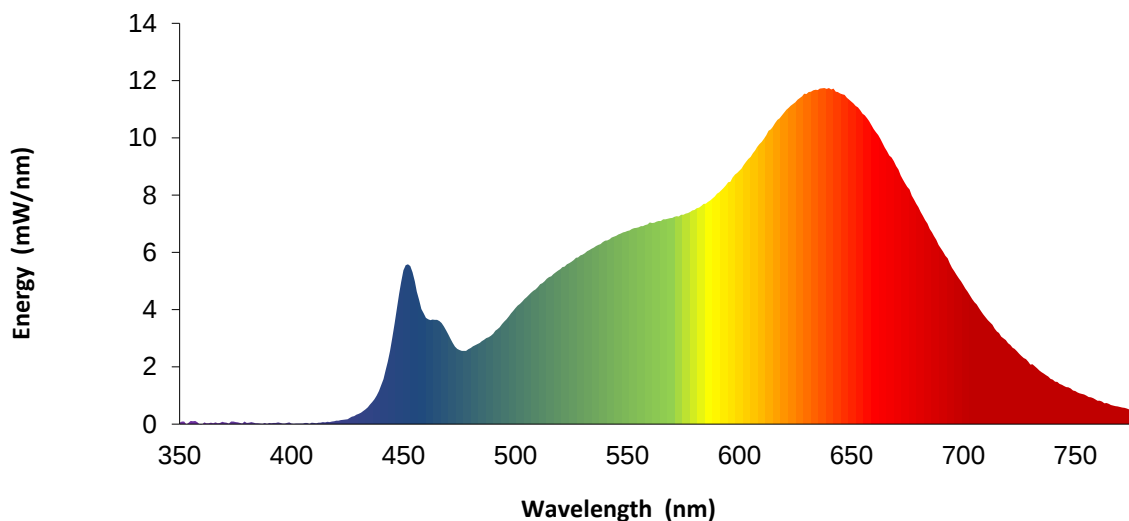


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	3.7		570	7.2		680	7.6
355	0.1		465	3.6		575	7.3		685	6.8
360	0.0		470	3.1		580	7.5		690	6.1
365	0.0		475	2.6		585	7.7		695	5.5
370	0.1		480	2.7		590	8.0		700	4.9
375	0.1		485	2.9		595	8.4		705	4.3
380	0.0		490	3.2		600	8.8		710	3.7
385	0.0		495	3.6		605	9.3		715	3.2
390	0.0		500	4.1		610	9.9		720	2.8
395	0.0		505	4.4		615	10.4		725	2.5
400	0.0		510	4.8		620	10.9		730	2.1
405	0.0		515	5.1		625	11.2		735	1.8
410	0.0		520	5.4		630	11.5		740	1.6
415	0.1		525	5.7		635	11.7		745	1.3
420	0.1		530	5.9		640	11.7		750	1.2
425	0.2		535	6.2		645	11.6		755	1.0
430	0.4		540	6.4		650	11.3		760	0.8
435	0.7		545	6.6		655	10.8		765	0.7
440	1.4		550	6.7		660	10.3		770	0.6
445	3.0		555	6.9		665	9.7		775	0.5
450	5.4		560	7.0		670	9.0		780	0.5
455	5.0		565	7.1		675	8.3		---	---

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	VBU	VBU
4	Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
5	Sorenson DC Power Supply	XHR 150-7	146922	VBU	VBU
6	Labsphere Spectroradiometer	CDS-600	146923	VBU	VBU
7	2M Rotating Sphere	7660-ROT	146923	VBU	VBU
8	Omega thermometer	USB TC08	EQA002615	4/7/2020	4/7/2021
9	Ametek DC Power Supply	XFR150-8	1468464	VBU	VBU
10	Yokogawa Power Meter	WT210	146880	10/1/2020	10/1/2021
11	Chroma Power Supply	61604	CHI0371	VBU	VBU
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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

REPORT NO. 104349704CHI-040

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606P48150930AW1	NA

TM-30 REPORT

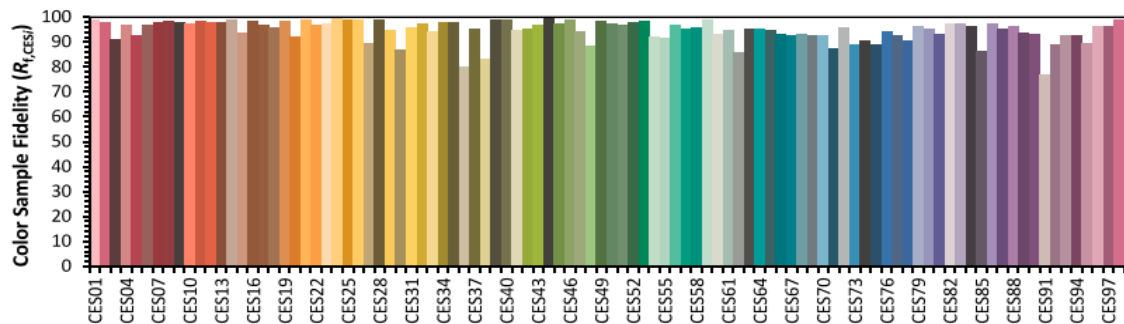
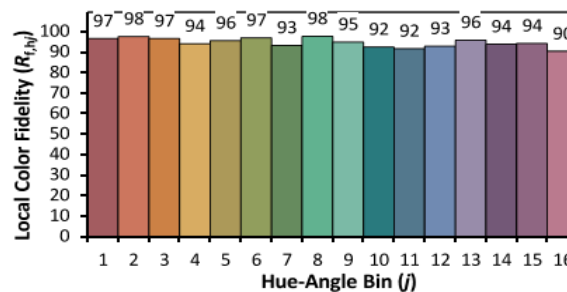
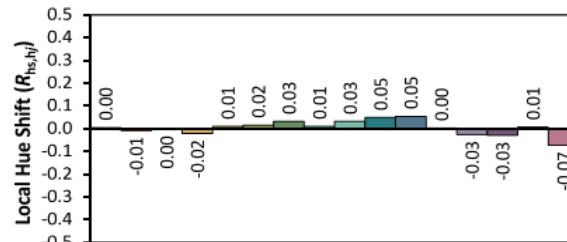
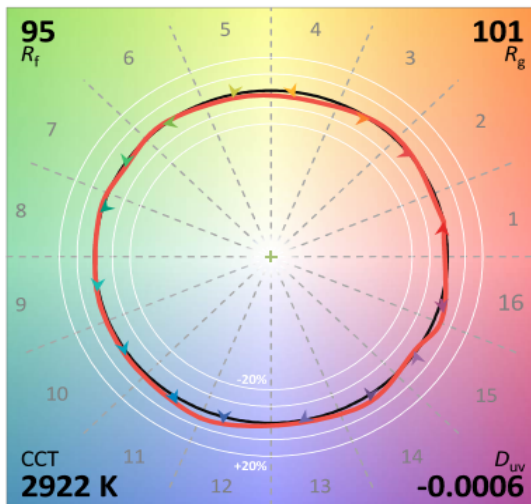
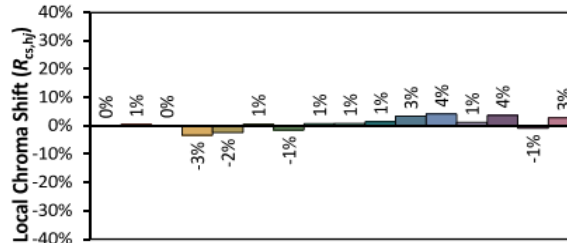
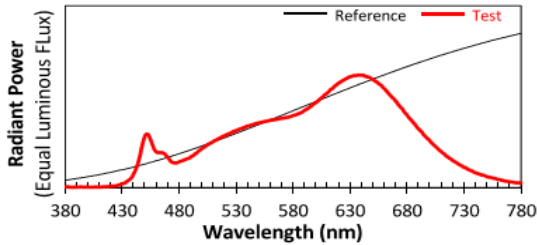
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Generation Brands, LLC

Date: 11/3/2020

Model: ESSF0606P48150930AW1



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

x 0.4416
 y 0.4040
 u' 0.2536
 v' 0.5220

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