

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ESSF0604P48180930AW1

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-042

ISSUE DATE

11/16/2020

REVISED DATE

None

TEST DATES

11/05/2020 through 11/06/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104349704CHI-042

MODEL NUMBER(s)

ESSF0604P48180930AW1

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

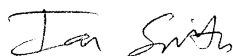
The testing performed was authorized by signed quote number Qu-01080748-3.

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	ESSF0604P48180930AW 1	ESSENCE 0604 P 200 930 WW	Production	10/29/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ESSF0604P48180930AW1	1

SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ESSF0604P48180930AW1
Product Description:	ESSENCE 0604 P 200 930 WW
LED Model No.:	P Series 200lm/ft
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	638.5	636.8
Input Power (W) @ 24 (Vdc)	7.47	7.48
Lumen Efficacy (lm/W)	85.5	85.1

Criteria	Results
Input ATHD (%) @ 24 (Vdc)	NA
Correlated Color Temperature (K)	2908
Color Rendering Index - Ra (l)	97.5
Color Rendering Index - R9 (l)	97.2
Duv (l)	-0.0008
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	ESSF0604P48180930AW1	NA

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

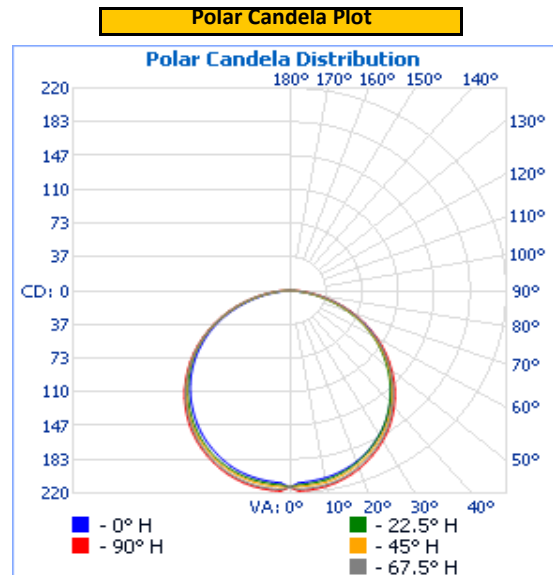
Base Orientation	Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	24.0	311.2	7.47	NA

Light Output (lm)	Lumen Efficacy (lm/W)
638.5	85.5

INTENSITY SUMMARY - CANDELA

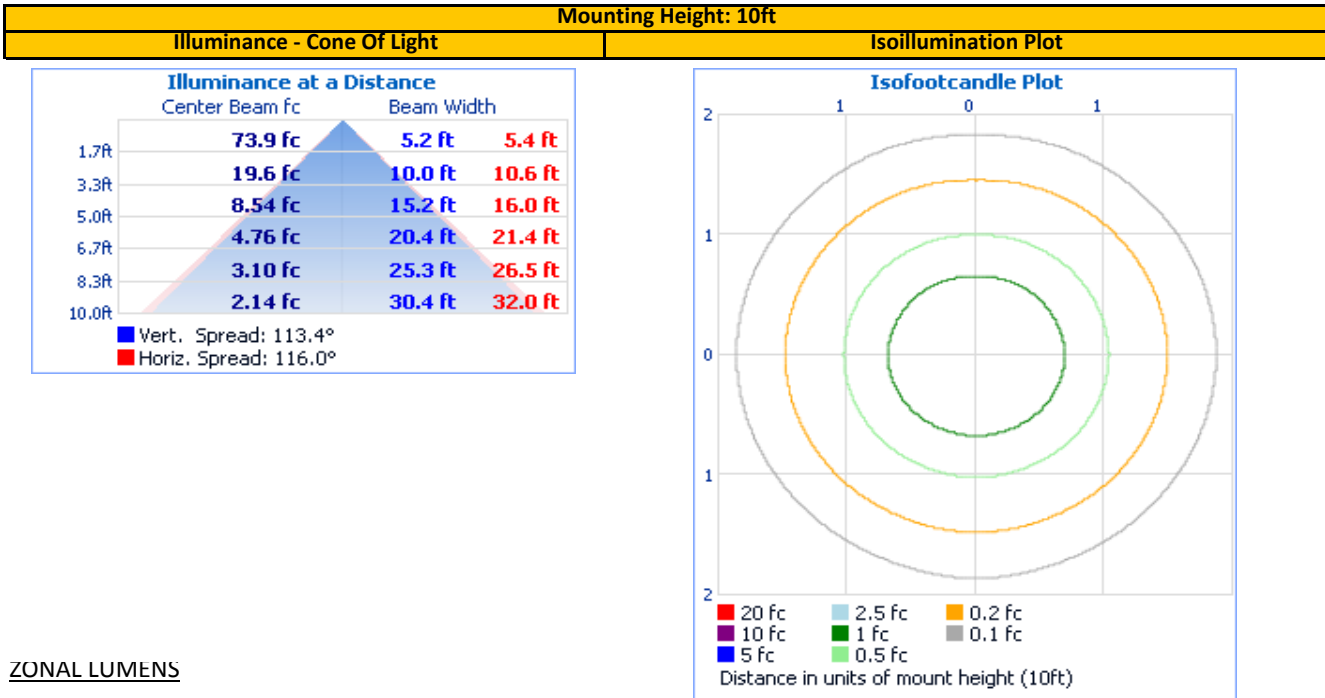
Angle	0	22.5	45	67.5	90
0	214	214	214	214	214
5	208	211	213	216	218
10	206	209	211	214	216
15	203	205	207	210	212
20	198	199	201	204	206
25	191	191	194	196	198
30	181	182	184	187	189
35	171	171	173	176	178
40	159	158	161	163	165
45	146	144	147	148	151
50	132	129	132	133	136
55	116	114	115	117	119
60	100	97	98	100	102
65	83	79	80	82	84
70	64	60	62	65	66
75	46	42	44	46	48
80	27	24	27	30	31
85	11	10	13	15	16
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	168.2	26.3%	90-100	0.0	0.0%
0-40	276.8	43.3%	100-110	0.0	0.0%
0-60	494.4	77.4%	110-120	0.0	0.0%
60-90	144.1	22.6%	120-130	0.0	0.0%
70-100	63.1	9.9%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	638.5	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	638.5	100.0%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0604P48180930AW1	NA

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

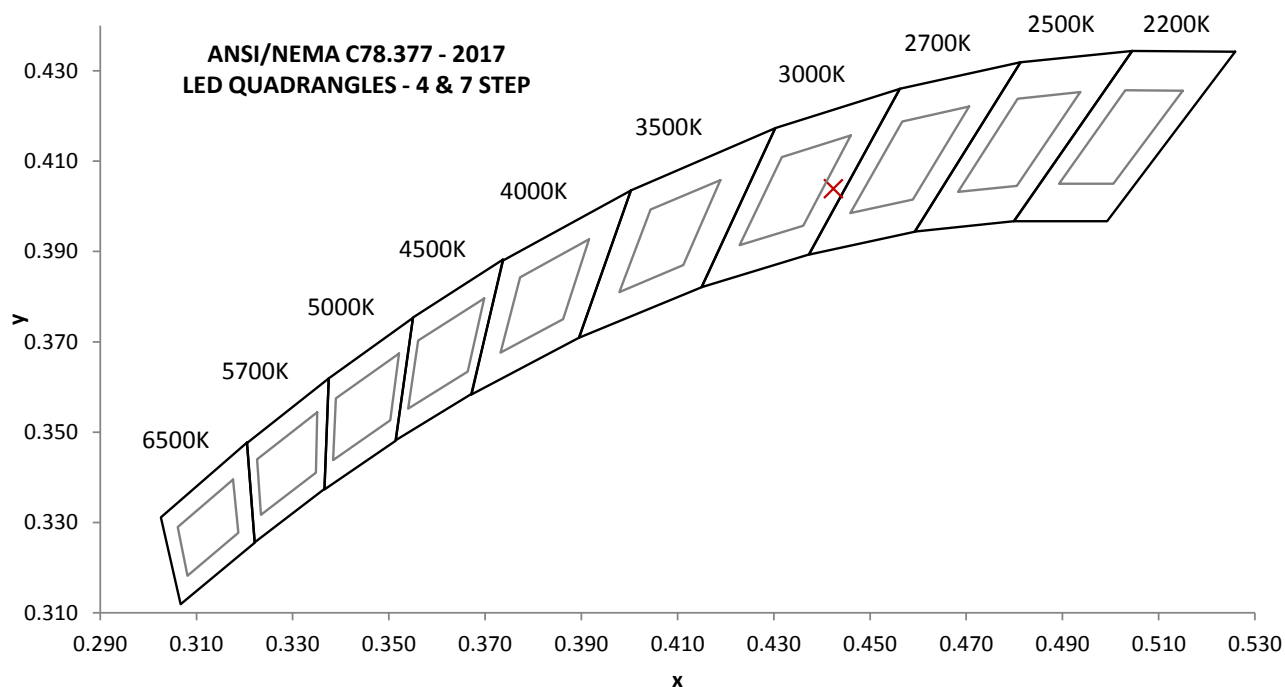
Base Orientation
Up

Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
24.01	311.7	7.48	NA	NA

Measured at 24.01(Vdc)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
636.8	85.1	2908	97.5	97.2

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0008	0.442	0.404	0.254	0.522

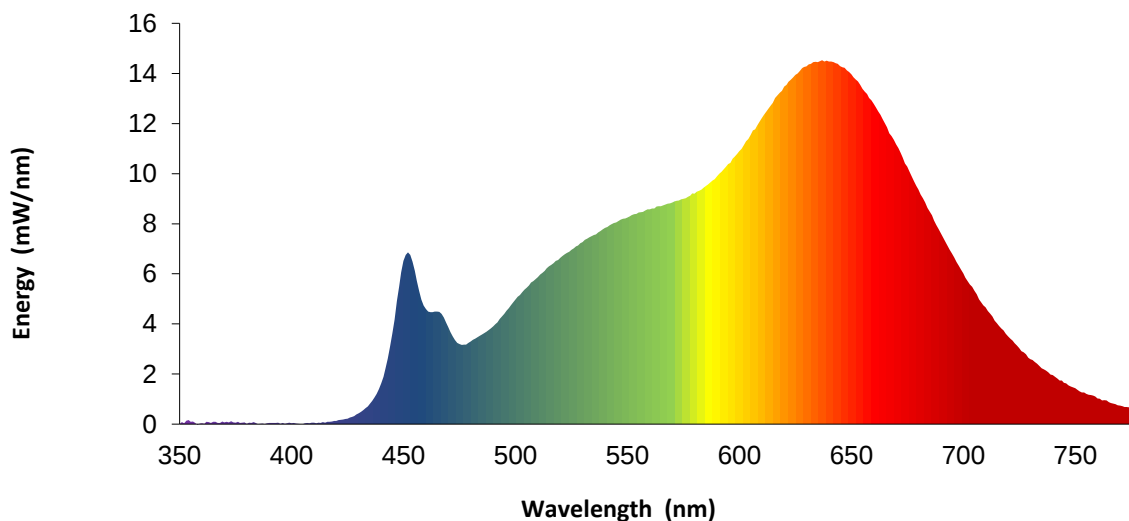


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.0		460	4.6		570	8.9		680	9.4
355	0.1		465	4.5		575	9.0		685	8.5
360	0.0		470	3.9		580	9.2		690	7.6
365	0.1		475	3.2		585	9.5		695	6.8
370	0.1		480	3.3		590	9.9		700	6.0
375	0.1		485	3.6		595	10.4		705	5.3
380	0.0		490	3.9		600	10.9		710	4.7
385	0.0		495	4.4		605	11.5		715	4.0
390	0.0		500	5.0		610	12.2		720	3.5
395	0.0		505	5.4		615	12.8		725	3.0
400	0.0		510	5.9		620	13.5		730	2.6
405	0.0		515	6.3		625	13.9		735	2.2
410	0.1		520	6.6		630	14.3		740	2.0
415	0.1		525	7.0		635	14.4		745	1.7
420	0.1		530	7.3		640	14.5		750	1.4
425	0.2		535	7.6		645	14.3		755	1.2
430	0.4		540	7.8		650	14.0		760	1.0
435	0.8		545	8.1		655	13.4		765	0.9
440	1.6		550	8.2		660	12.8		770	0.7
445	3.6		555	8.4		665	12.0		775	0.7
450	6.5		560	8.6		670	11.2		780	0.5
455	6.1		565	8.7		675	10.3		---	---

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	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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30					

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
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ANNEX A - TM-30 CALCULATIONS

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0604P48180930AW1	NA

TM-30 REPORT

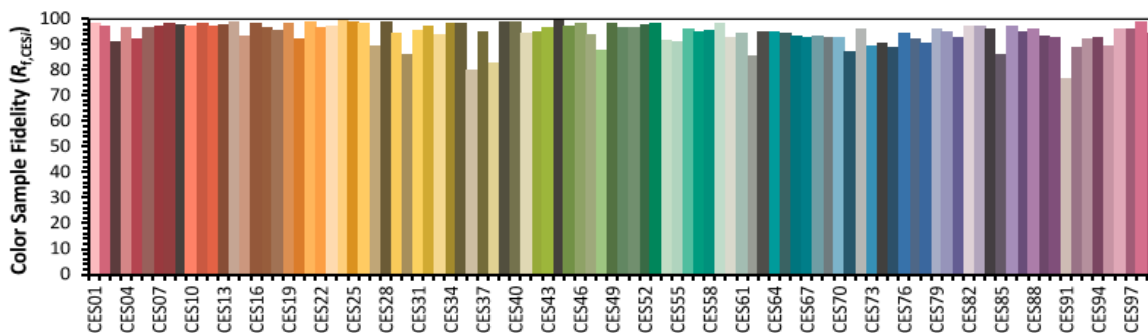
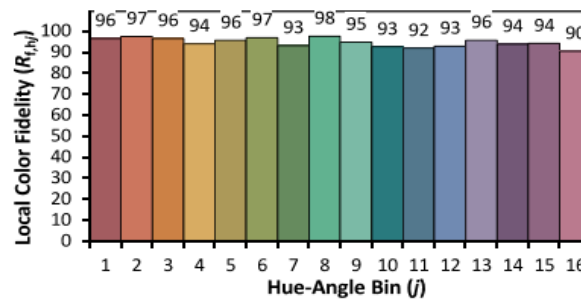
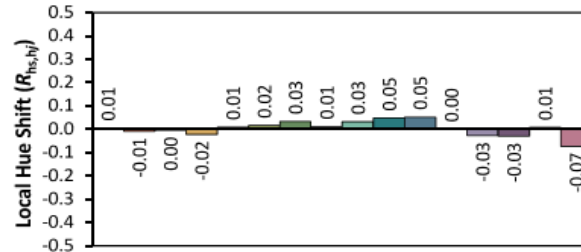
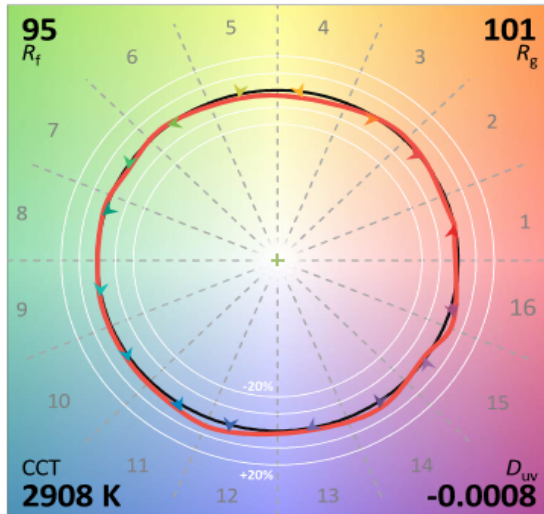
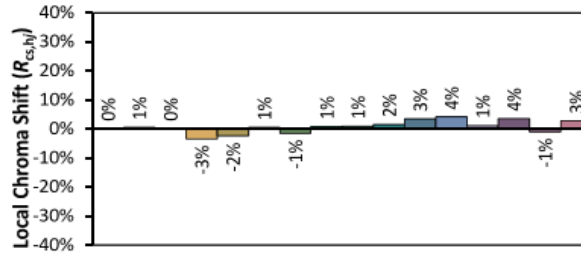
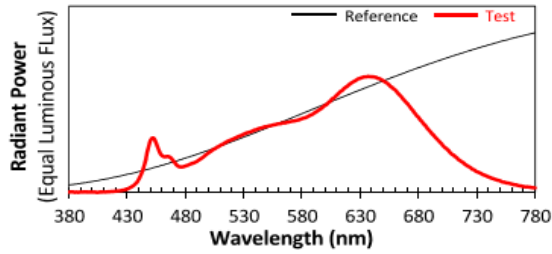
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Generation Brands, LLC

Date: 11/5/2020

Model: ESSF0604P48180930AW1



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

x 0.4424
y 0.4038
u' 0.2542
v' 0.5221

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