

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ESSF0604P48180930FW1

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-041

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-041

MODEL NUMBER(s)

ESSF0604P48180930FW1

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	ESSF0604P48180930FW 1	ESSENCE 0604 P 200 930 FW	Production	10/29/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ESSF0604P48180930FW1	1

SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ESSF0604P48180930FW1
Product Description:	ESSENCE 0604 P 200 930 FW
LED Model No.:	P Series 200lm/ft
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	781.1	785.1
Input Power (W) @ 24 (Vdc)	7.46	7.48
Lumen Efficacy (lm/W)	104.7	104.9

Criteria	Results
Input ATHD (%) @ 24 (Vdc)	NA
Correlated Color Temperature (K)	3002
Color Rendering Index - Ra (l)	97.6
Color Rendering Index - R9 (l)	97.3
Duv (l)	-0.0008
Chromaticity Coordinate (x)	0.436
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.520

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	ESSF0604P48180930FW1	NA

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

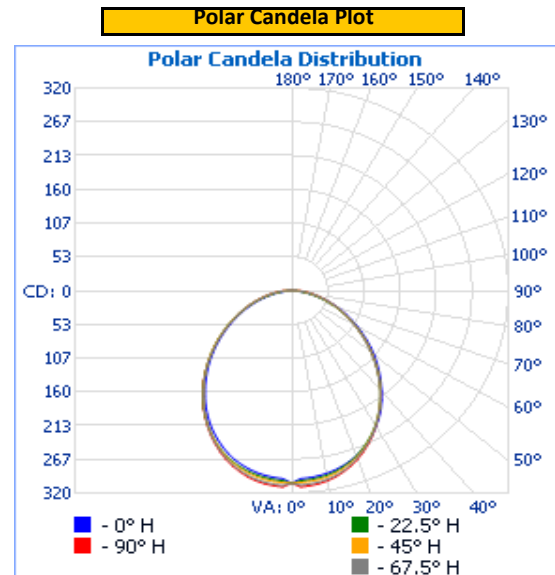
Base Orientation	Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	24.0	310.7	7.46	NA

Light Output (lm)	Lumen Efficacy (lm/W)
781.1	104.7

INTENSITY SUMMARY - CANDELA

Angle	0	22.5	45	67.5	90
0	304	304	304	304	304
5	297	300	302	307	309
10	293	296	299	303	305
15	287	289	292	295	296
20	278	278	280	282	284
25	265	264	265	266	267
30	248	247	247	248	248
35	229	226	226	226	228
40	207	204	204	203	205
45	183	179	179	179	180
50	159	155	155	154	155
55	135	130	131	129	131
60	111	107	107	107	107
65	88	84	85	85	86
70	66	63	65	66	66
75	46	43	46	48	48
80	27	26	30	32	33
85	11	11	16	19	20
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

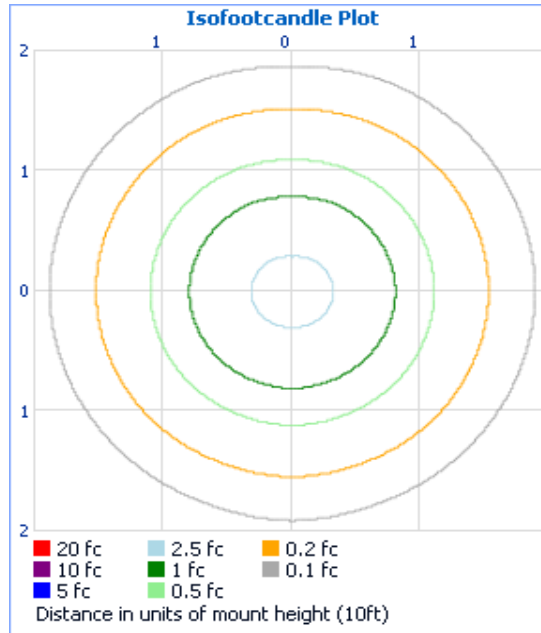
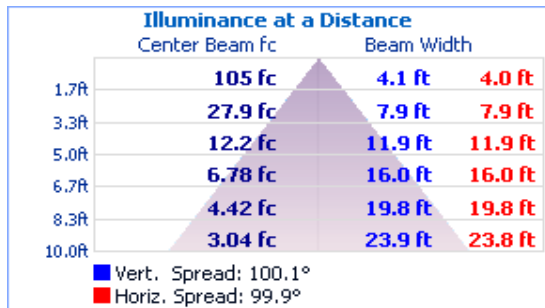
Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY

Mounting Height: 10ft		
Illuminance - Cone Of Light	Isoillumination Plot	



ZONAL LUMENS

Zonal Lumen Summary

Zone	Lumens	Luminaire
0-30	232.9	29.8%
0-40	374.3	47.9%
0-60	629.8	80.6%
60-90	151.3	19.4%
70-100	66.4	8.5%
90-120	0.0	0.0%
0-90	781.1	100.0%
90-180	0.0	0.0%
0-180	781.1	100.0%

Zone	Lumens	Total	Zone	Lumens	Total
0-10	28.8	3.7%	90-100	0.0	0.0%
10-20	82.1	10.5%	100-110	0.0	0.0%
20-30	121.9	15.6%	110-120	0.0	0.0%
30-40	141.4	18.1%	120-130	0.0	0.0%
40-50	138.5	17.7%	130-140	0.0	0.0%
50-60	117.1	15.0%	140-150	0.0	0.0%
60-70	84.9	10.9%	150-160	0.0	0.0%
70-80	49.1	6.3%	160-170	0.0	0.0%
80-90	17.2	2.2%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0604P48180930FW1	NA

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

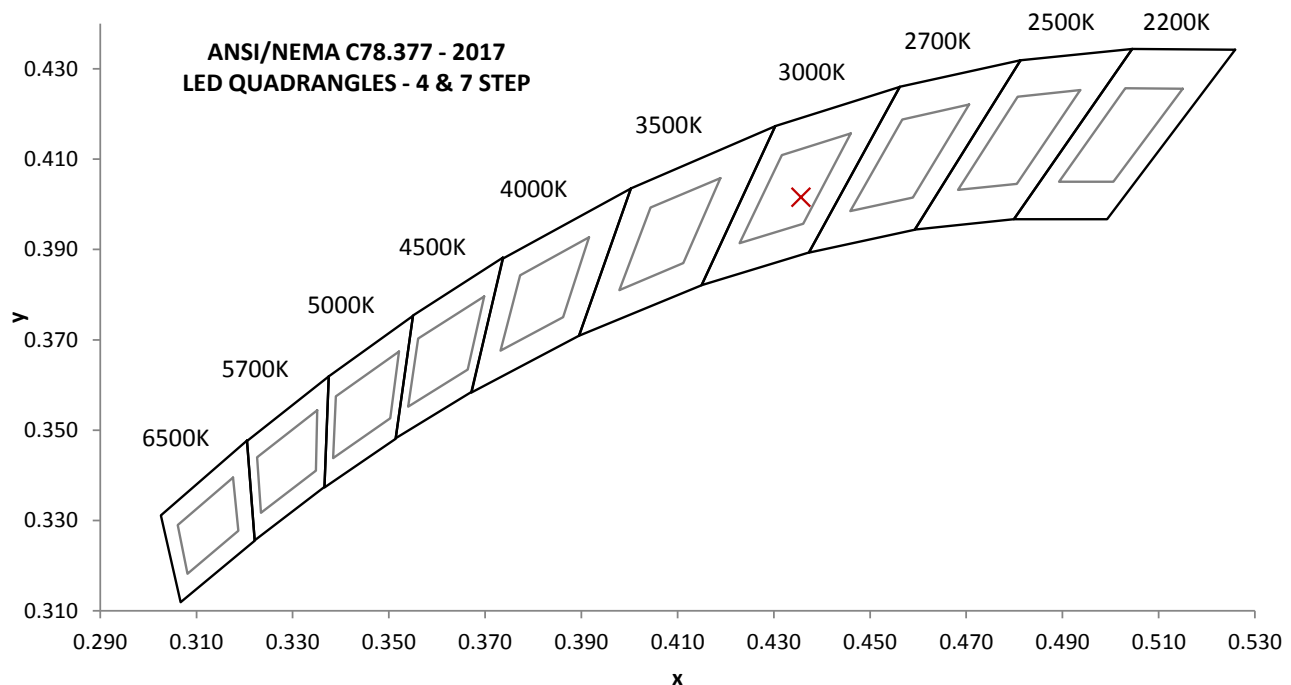
Base Orientation
Up

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 ()
785.1	104.9	3002	97.6	97.3

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0008	0.436	0.402	0.251	0.520

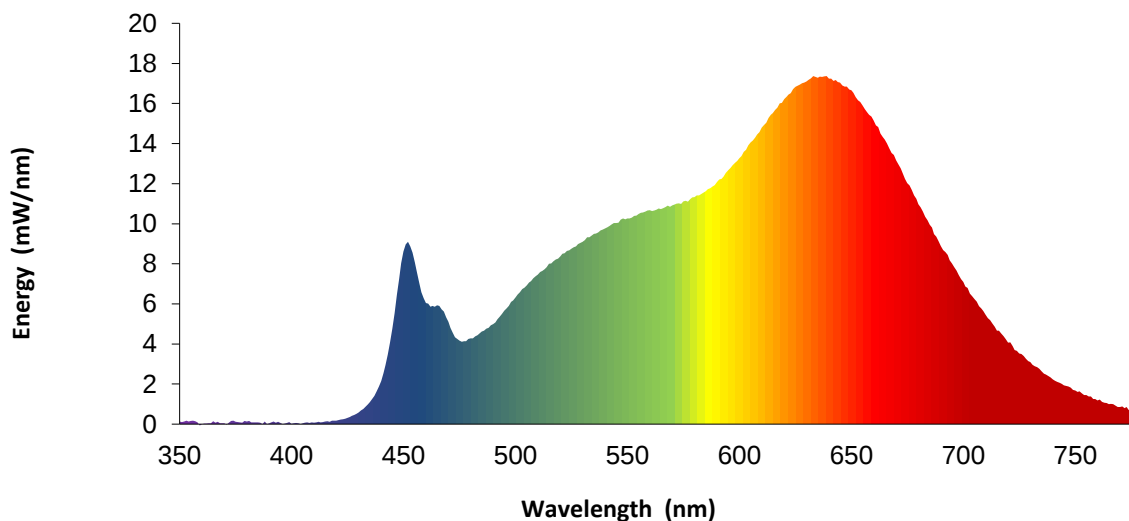


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	6.0		570	10.9		680	11.0
355	0.2		465	5.9		575	11.1		685	10.0
360	0.0		470	5.1		580	11.3		690	8.9
365	0.1		475	4.2		585	11.6		695	8.0
370	0.1		480	4.3		590	12.1		700	7.1
375	0.1		485	4.6		595	12.7		705	6.2
380	0.1		490	5.0		600	13.3		710	5.5
385	0.1		495	5.7		605	14.1		715	4.7
390	0.0		500	6.3		610	14.8		720	4.1
395	0.1		505	6.9		615	15.5		725	3.5
400	0.0		510	7.5		620	16.2		730	3.1
405	0.0		515	8.0		625	16.8		735	2.6
410	0.1		520	8.4		630	17.1		740	2.2
415	0.1		525	8.8		635	17.3		745	1.9
420	0.2		530	9.1		640	17.2		750	1.7
425	0.3		535	9.5		645	17.0		755	1.5
430	0.6		540	9.8		650	16.7		760	1.2
435	1.1		545	10.0		655	15.9		765	1.0
440	2.1		550	10.3		660	15.2		770	0.9
445	4.8		555	10.5		665	14.2		775	0.8
450	8.6		560	10.7		670	13.2		780	0.6
455	8.1		565	10.7		675	12.0		---	---

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
12					
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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	ESSF0604P48180930FW1	NA

TM-30 REPORT

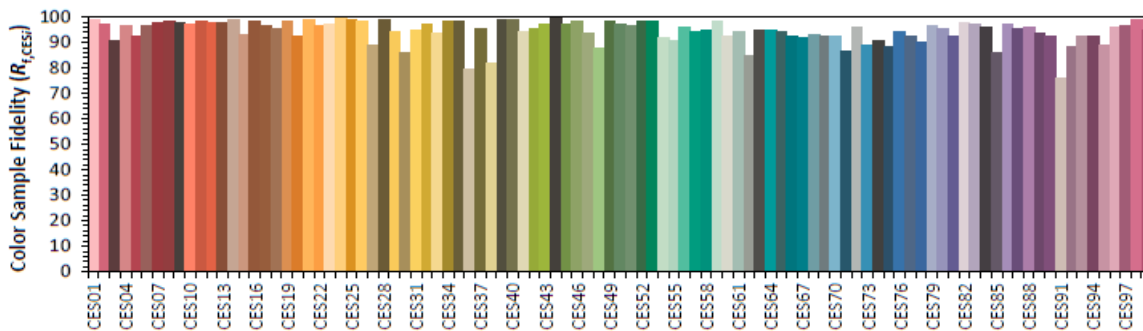
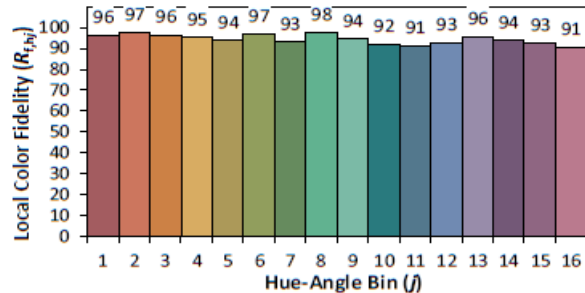
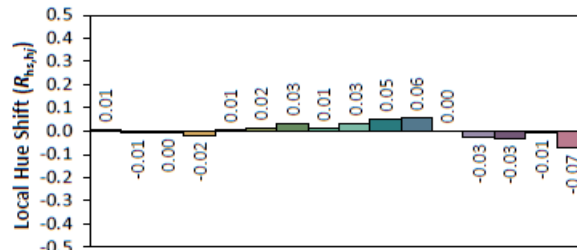
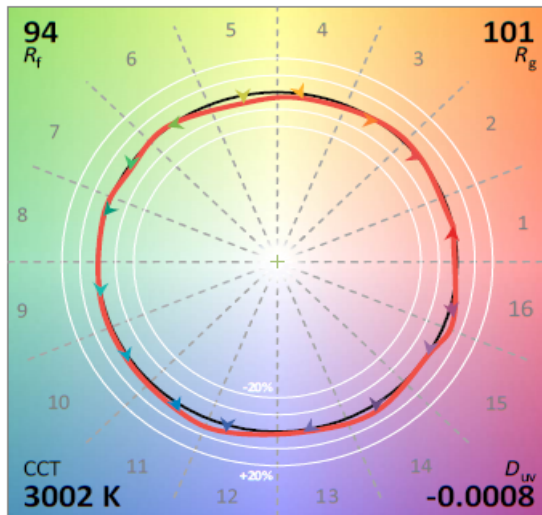
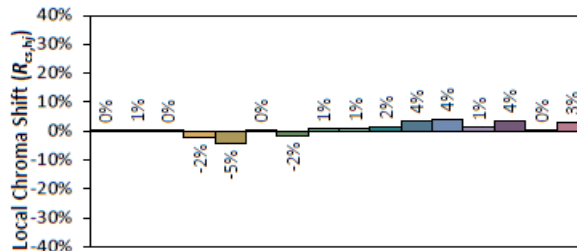
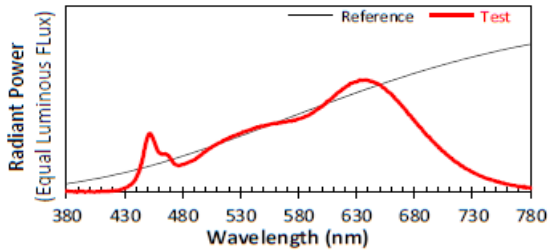
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Generation Brands, LLC

Date: 11/5/2020

Model: ESSF0604P48180930FW1



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

x 0.4356
 y 0.4015
 u' 0.2508
 v' 0.5202

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