

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ESSF0606P48300930FW1

PROJECT NUMBER

G104349704

REPORT NUMBER

10434974CHI-021

ISSUE DATE

8/17/2020

REVISED DATE

None

TEST DATES

08/13/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

10434974CHI-021

MODEL NUMBER(s)

ESSF0606P48300930FW1

REPORT RENDERED TO:

GENERATION BRANDS, LLC
7400 LINDER AVE
SKOKIE, IL 60077

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
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Reviewer:



Jeff Davis
NA Technical Lead
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SAMPLE INFORMATION

REPORT NO. 10434974CHI-021

ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH08122020025613-021	ESSF0606P48300930FW 1	ESSENCE 0606 P 300 930 F W	Production	8/12/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ESSF0606P48300930FW1	1

SUMMARY

REPORT NO. 10434974CHI-021

PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ESSF0606P48300930FW1
Product Description:	ESSENCE 0606 P 300 930 F W
LED Model No.:	P Series
Driver Model No.:	NA
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	1483.7	1507.4
Input Power (W) @ 24VDC (Vdc)	18.46	18.42
Lumen Efficacy (lm/W)	80.4	81.8
Input Power Factor (I) @ 24VDC (Vdc)	NA	NA

Criteria	Results
Input ATHD (%) @ 24VDC (Vdc)	NA
Correlated Color Temperature (K)	3022
Color Rendering Index - Ra (I)	97.7
Color Rendering Index - R9 (I)	98.5
Duv (I)	-0.0015
Chromaticity Coordinate (x)	0.433
Chromaticity Coordinate (y)	0.399
Chromaticity Coordinate (u')	0.250
Chromaticity Coordinate (v')	0.519

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

REPORT NO. 10434974CHI-021

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606P48300930FW1	NA

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

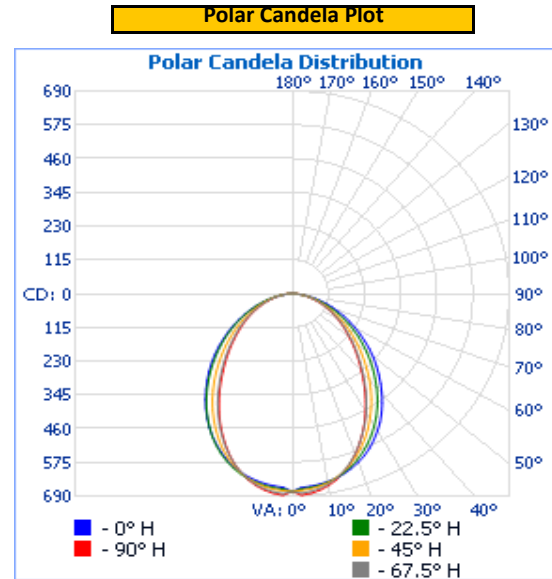
Base Orientation	Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	24.0	769.0	18.46	NA

Light Output (lm)	Lumen Efficacy (lm/W)
1483.7	80.4

INTENSITY SUMMARY - CANDELA

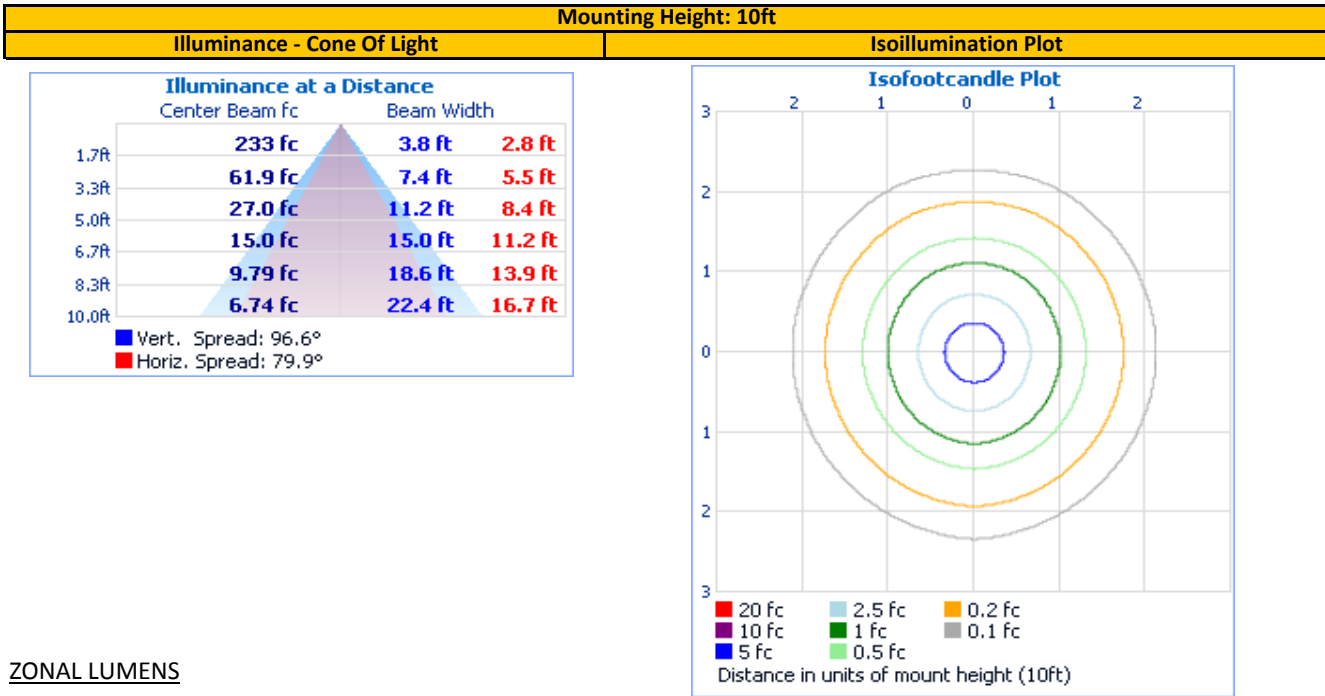
Angle	0	22.5	45	67.5	90
0	674	674	674	674	674
5	659	663	667	676	683
10	650	652	654	659	664
15	635	632	628	628	630
20	612	603	591	582	584
25	581	565	546	528	527
30	541	521	493	470	465
35	495	471	438	408	402
40	443	417	381	348	343
45	389	362	324	294	289
50	336	308	272	246	242
55	281	257	225	204	200
60	229	208	182	166	162
65	181	162	142	130	127
70	134	120	107	98	96
75	92	82	75	70	68
80	54	48	47	45	44
85	23	21	24	25	25
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



REPORT NO. 10434974CHI-021

ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary										
	Zone	Lumens	Luminaire		Zone	Lumens	Total	Zone	Lumens	Total
	0-30	493.0	33.2%		0-10	63.5	4.3%	90-100	0.0	0.0%
	0-40	768.9	51.8%		10-20	177.3	11.9%	100-110	0.0	0.0%
	0-60	1,231.5	83.0%		20-30	252.2	17.0%	110-120	0.0	0.0%
	60-90	252.2	17.0%		30-40	276.0	18.6%	120-130	0.0	0.0%
	70-100	106.5	7.2%		40-50	255.1	17.2%	130-140	0.0	0.0%
	90-120	0.0	0.0%		50-60	207.4	14.0%	140-150	0.0	0.0%
	0-90	1,483.7	100.0%		60-70	145.7	9.8%	150-160	0.0	0.0%
	90-180	0.0	0.0%		70-80	80.9	5.5%	160-170	0.0	0.0%
	0-180	1,483.7	100.0%		80-90	25.5	1.7%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

REPORT NO. 10434974CHI-021

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606P48300930FW1	NA

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

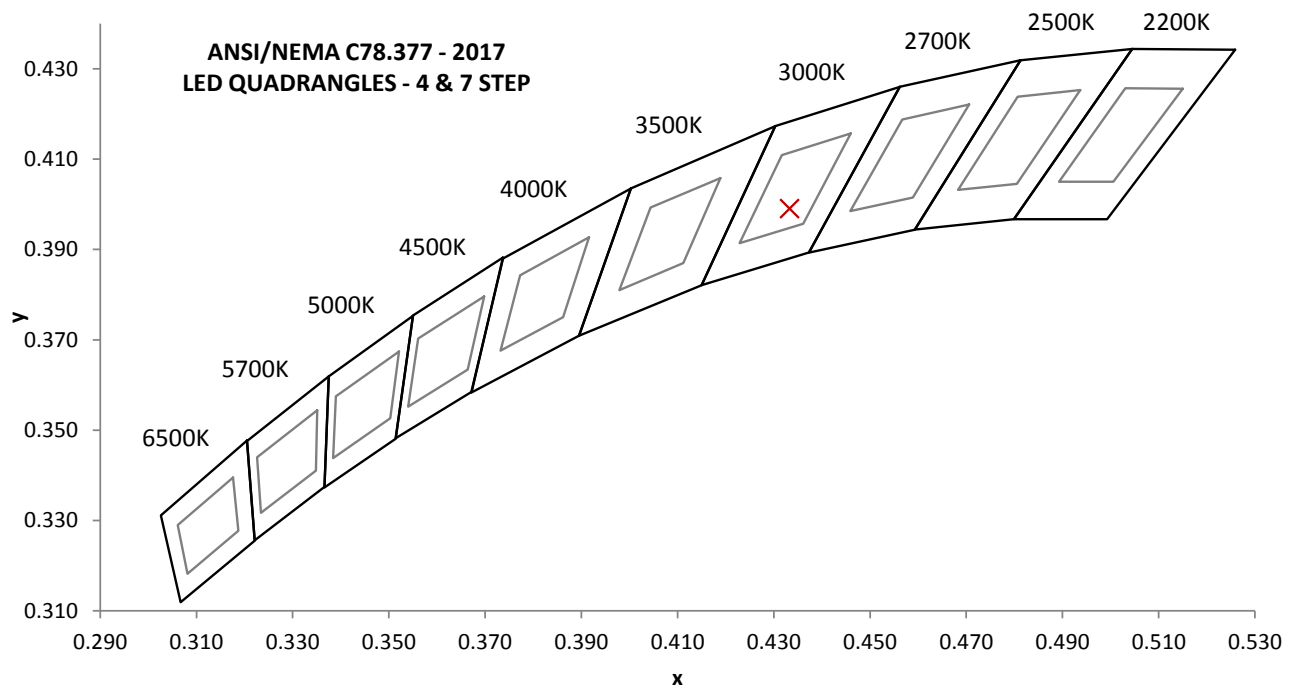
Base Orientation
Up

Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
24.00	767.7	18.42	NA	NA

Measured at 24(Vdc)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
1507.4	81.8	3022	97.7	98.5

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0015	0.433	0.399	0.250	0.519

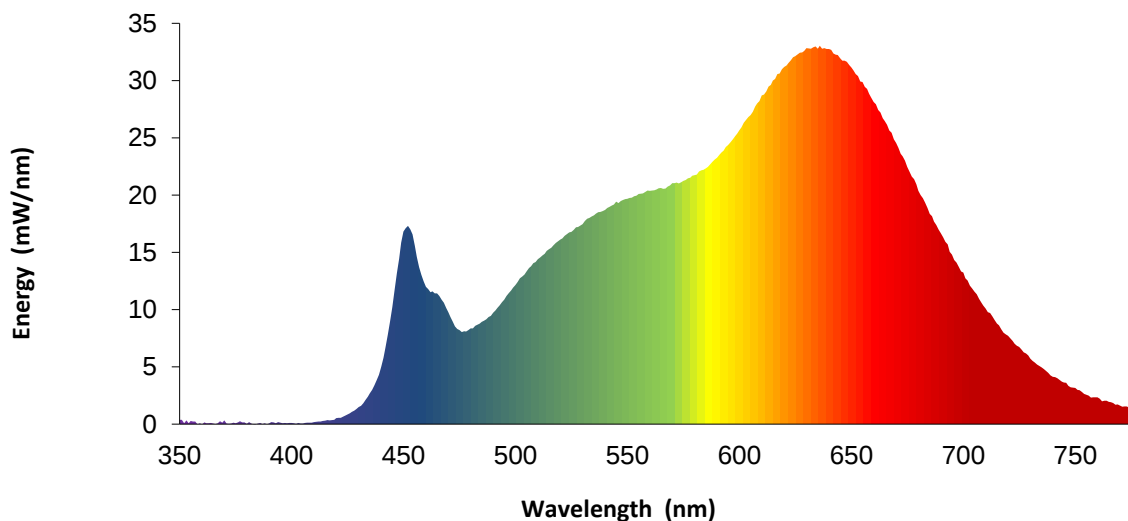


REPORT NO. 10434974CHI-021

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.4		460	12.0		570	21.1		680	20.4
355	0.3		465	11.4		575	21.2		685	18.3
360	0.0		470	9.8		580	21.8		690	16.7
365	0.1		475	8.2		585	22.3		695	14.8
370	0.3		480	8.4		590	23.3		700	13.2
375	0.1		485	8.9		595	24.4		705	11.6
380	0.0		490	9.7		600	25.6		710	10.1
385	0.0		495	10.9		605	27.0		715	8.8
390	0.1		500	12.1		610	28.7		720	7.7
395	0.1		505	13.4		615	30.0		725	6.7
400	0.1		510	14.4		620	31.2		730	5.7
405	0.1		515	15.3		625	32.1		735	5.0
410	0.2		520	16.1		630	32.8		740	4.1
415	0.3		525	16.8		635	32.8		745	3.6
420	0.5		530	17.5		640	32.8		750	3.2
425	0.8		535	18.2		645	32.0		755	2.6
430	1.5		540	18.7		650	31.1		760	2.4
435	2.7		545	19.4		655	29.9		765	1.9
440	5.0		550	19.7		660	28.1		770	1.6
445	10.2		555	20.1		665	26.5		775	1.4
450	16.8		560	20.4		670	24.6		780	1.2
455	15.6		565	20.6		675	22.5		---	---

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

REPORT NO. 10434974CHI-021

#	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	10/3/2019	10/3/2020
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	Newport Humidity Recorder	iServer	CHI0456	10/11/2019	10/11/2020
7	Labsphere Spectroradiometer	CDS-600	146923	VBU	VBU
8	2M Rotating Sphere	7660-ROT	146923	VBU	VBU
9	Omega thermometer	USB TC08	EQAH002615	4/7/2020	4/7/2021
10	Ametek DC Power Supply	XFR150-8	1468464	VBU	VBU
11	Yokogawa Power Meter	WT210	146880	10/2/2019	10/2/2020
12	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
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