

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ESSF0606U48300930WW1

PROJECT NUMBER

G104349704

REPORT NUMBER

10434974CHI-020

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-020

MODEL NUMBER(s)

ESSF0606U48300930WW1

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
Engineer
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Reviewer:



Jeff Davis
NA Technical Lead
Lighting Division

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SAMPLE INFORMATION**REPORT NO. 10434974CHI-020****ITEMS RECEIVED**

Item No.	Control No.	Model No.	Description	Type	Received
1	AH08122020025613-020	ESSF0606U48300930W W1	ESSENCE 0606 U 300 930 W W	Production	8/12/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ESSF0606U48300930WW1	1

SUMMARY

REPORT NO. 10434974CHI-020

PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ESSF0606U48300930WW1
Product Description:	ESSENCE 0606 U 300 930 W W
LED Model No.:	U Series
Driver Model No.:	NA
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	1144.3	1166.4
Input Power (W) @ 24VDC (Vdc)	18.23	18.24
Lumen Efficacy (lm/W)	62.8	63.9
Input Power Factor (I) @ 24VDC (Vdc)	NA	NA

Criteria	Results
Input ATHD (%) @ 24VDC (Vdc)	NA
Correlated Color Temperature (K)	2982
Color Rendering Index - Ra (I)	97.4
Color Rendering Index - R9 (I)	98.2
Duv (I)	-0.0018
Chromaticity Coordinate (x)	0.436
Chromaticity Coordinate (y)	0.399
Chromaticity Coordinate (u')	0.252
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-020

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606U48300930WW1	NA

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

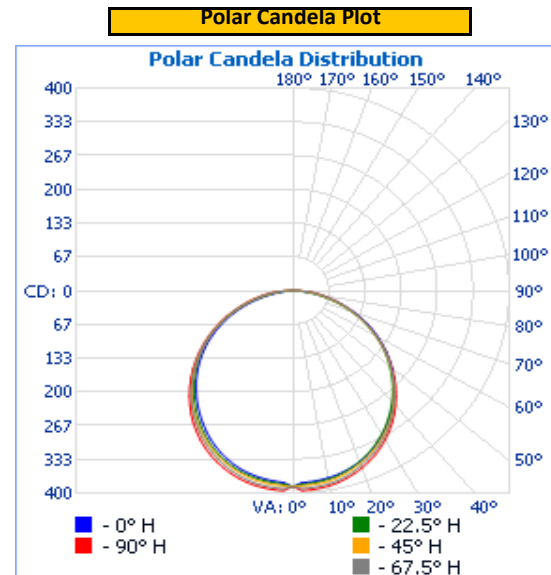
Base Orientation	Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	24.0	759.8	18.23	NA

Light Output (lm)	Lumen Efficacy (lm/W)
1144.3	62.8

INTENSITY SUMMARY - CANDELA

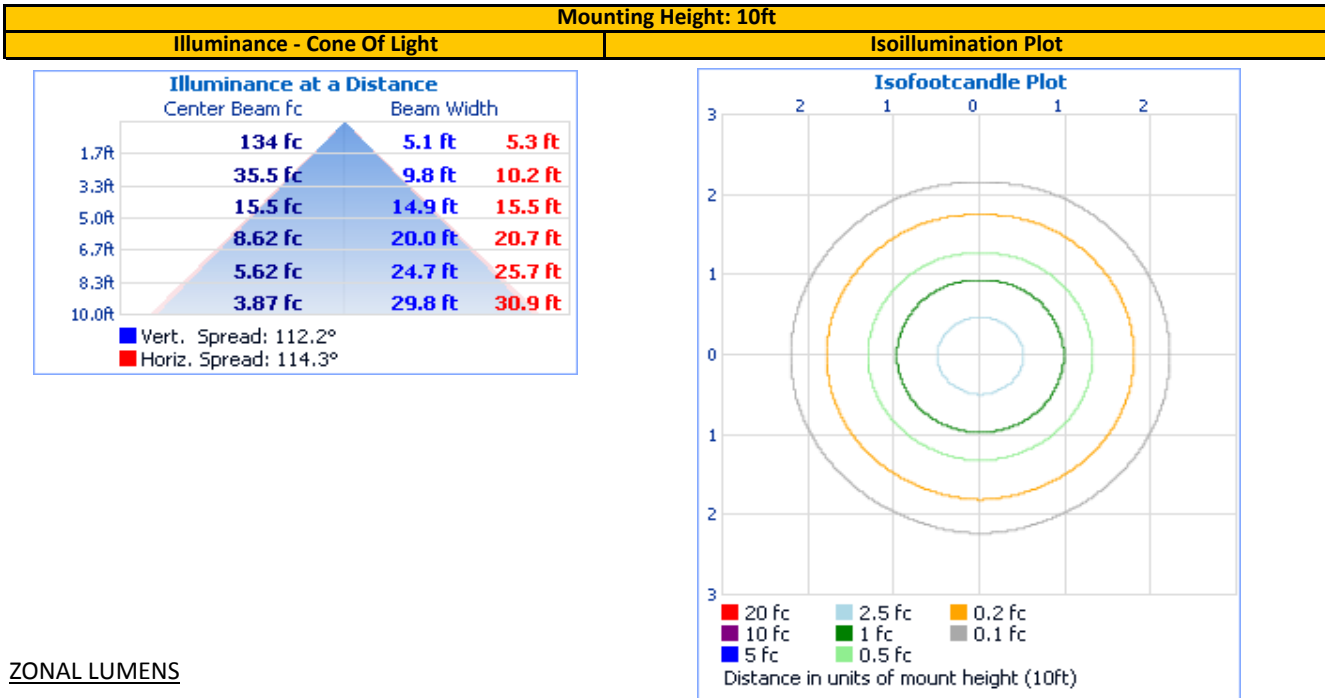
Angle	0	22.5	45	67.5	90
0	387	387	387	387	387
5	379	382	385	391	395
10	376	378	382	388	391
15	369	371	375	380	384
20	360	360	364	368	373
25	347	345	350	354	359
30	330	328	333	336	341
35	310	308	313	316	320
40	288	285	290	292	296
45	264	261	264	265	269
50	239	234	236	238	240
55	210	206	208	208	211
60	181	176	177	178	180
65	150	144	145	147	148
70	117	111	113	115	116
75	83	78	81	84	86
80	51	47	52	57	58
85	22	21	28	34	35
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-020

ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	303.5	26.5%	90-100	0.0	0.0%
0-40	498.2	43.5%	100-110	0.0	0.0%
0-60	885.7	77.4%	110-120	0.0	0.0%
60-90	258.6	22.6%	120-130	0.0	0.0%
70-100	115.3	10.1%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	1,144.3	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	1,144.3	100.0%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

REPORT NO. 10434974CHI-020

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606U48300930WW1	NA

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

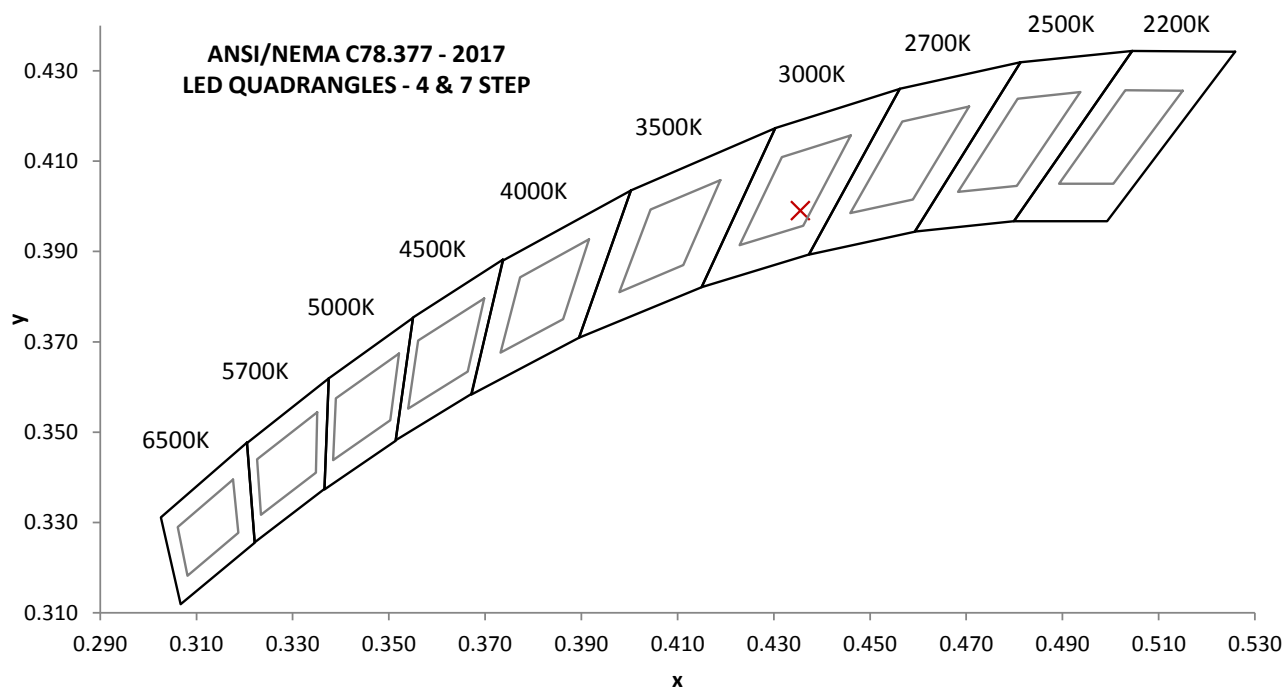
Base Orientation
Up

Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
23.99	760.3	18.24	NA	NA

Measured at 23.99(Vdc)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
1166.4	63.9	2982	97.4	98.2

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0018	0.436	0.399	0.252	0.519

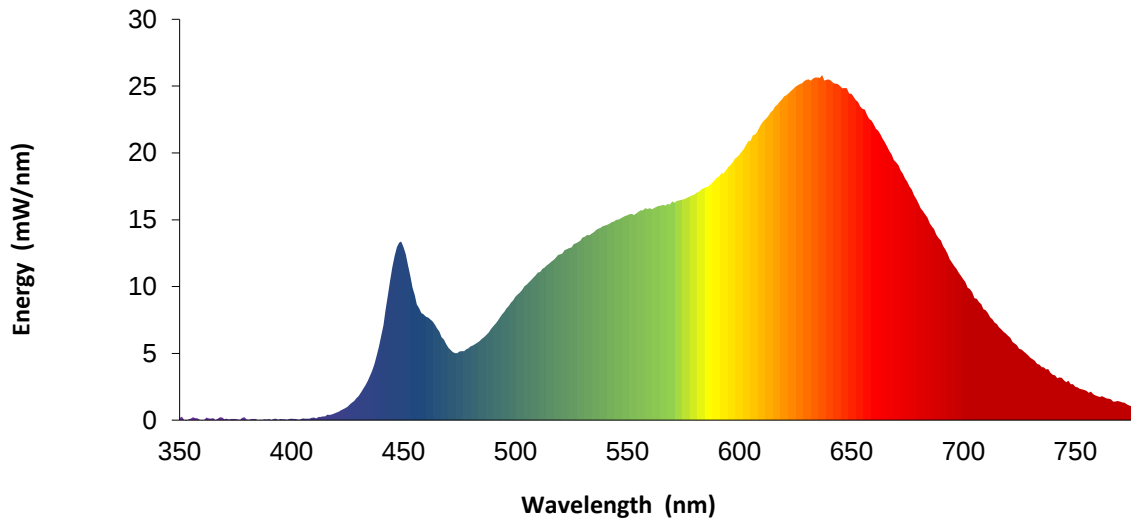


REPORT NO. 10434974CHI-020

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	7.7		570	16.4		680	16.2
355	0.1		465	6.9		575	16.5		685	14.7
360	0.0		470	5.4		580	16.9		690	13.5
365	0.1		475	5.1		585	17.4		695	11.8
370	0.1		480	5.5		590	18.2		700	10.5
375	0.1		485	6.1		595	18.9		705	9.1
380	0.0		490	7.0		600	19.9		710	8.2
385	0.0		495	8.1		605	20.9		715	7.2
390	0.1		500	9.2		610	22.2		720	6.3
395	0.1		505	10.2		615	23.2		725	5.3
400	0.1		510	11.0		620	24.2		730	4.7
405	0.1		515	11.7		625	24.9		735	4.0
410	0.2		520	12.4		630	25.5		740	3.4
415	0.3		525	12.9		635	25.6		745	3.0
420	0.6		530	13.7		640	25.5		750	2.5
425	1.0		535	14.1		645	25.0		755	2.2
430	1.8		540	14.6		650	24.4		760	1.8
435	3.3		545	15.0		655	23.3		765	1.6
440	6.3		550	15.3		660	22.2		770	1.4
445	11.5		555	15.6		665	20.8		775	1.1
450	13.0		560	15.9		670	19.3		780	1.0
455	9.3		565	16.1		675	17.8		---	---

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-020

#	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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